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TECHNOLOGIES FOR CONSERVING SPECIES: SAVING THE ENDANGERED RHINOCEROS

HEARING

BEFORE THE

SUBCOMMITTEE ON NATURAL RESOURCES, AGRICULTURE RESEARCH AND ENVIRONMENT

OF THE

COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY U.S. HOUSE OF REPRESENTATIVES

ONE HUNDREDTH CONGRESS

SECOND SESSION

JUNE 22, 1988

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TECHNOLOGIES FOR CONSERVING SPECIES: SAVING THE ENDANGERED RHINOCEROS

WEDNESDAY, JUNE 22, 1988

HOUSE OF REPRESENTATIVES, COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY, SUBCOMMITTEE ON NATURAL RESOURCES, AGRICULTURE RESEARCH AND ENVIRONMENT,

Washington, DC.

The subcommittee met, pursuant to notice, at 1:13 p.m., in room 2318, Rayburn House Office Building, Hon. James H. Scheuer (chairman of the subcommittee) presiding.

Staff present: Dr. David Blockstein, AIBS/ASZ Science Fellow; Michael Rodemeyer, Staff Director and Counsel; Wesley Warren, Republican Technical Consultant.

Mr. SCHEUER. Good afternoon. The Subcommittee on Natural Resources, Agricultural Research and Environment will come to order. Today, we're happy to have a hearing on a topic that we visited about two years ago and that is efforts to prevent the extinction of the rhinos.

Of course, this is symbolic of the efforts that we are making across a broad scope to slow down and hopefully stop the destruction of biological diversity on our planet. That includes plant species. It includes tropical rain forests. It includes rhinos. It includes elephants and it includes the late lamented passenger pigeon, an example of man's folly—the passenger pigeon of which there are no more.

Ms. SCHNEIDER. Nobody got the message.

Mr. SCHEUER. Claudine Schneider was not on that watch and the passenger pigeons are now lost. Do you have an opening statement?

Ms. SCHNEIDER. No, sir.

Mr. SCHEUER. The rhino is our special, but not our exclusive concern today. They have been on the earth for thirty million years, much longer than man. Rhinos have been able to thrive for the millennia, populating India, Africa, much of the near East and even reaching to the East Indies.

The rhino has been able to cope with every single predator for that thirty million years until now. The predator with which they could not cope is man. Today rhinos are reduced to remnant populations persisting on in a few protected pockets under the watchful eye of armed wardens. We have assailed the habitat of rhinos, causing their population to plummet as our own human population soars exponentially toward disaster and toward poverty, disease, ig-

norance and joblessness among those human populations in the developing world, particularly in Africa.

More recently, the destruction of rhinos has been even more direct as poachers have killed tens of thousands of rhinos. If you've ever seen a picture of a rhino that has been destroyed for the sake of the horn, it's enough to turn your stomach—a mutilated head with the horn chopped out, cut out and that magnificent beast lying on the ground, mutilated, degraded—and all for human greed.

The rhino horn is sold at exorbitant prices to be made into daggers for North Yemen or pulverized into powder to fulfill the fantasies of oriental folklore. As a result of the hearing that we had two years ago and working in cooperation with the State Department and making some personal, Congressional—reaching out personally to Ambassador Tommy Koh of Singapore, we managed to get the Singapore government to reverse its conduct 180 degrees and finally clamp down on the illegal sale of rhino horns in Singapore and to join CITES.

Things can happen and it is our purpose in this hearing to chart the way again and to give us hopefully—for you experts to give us some specific missions to further work on this whole question of the destruction of the biota of our planet. Something that offends me deeply and when I read that at the turn of the century there were more than a million rhinos and that they have been reduced today—at least the black rhinos—to about 3,500; it's enraging. It's absolutely enraging.

To read and to be told that every two or two and half years, we're cutting our remaining remnants of the rhino herd by 50 percent, is as I say, deeply offensive to any thinking human being. Private groups like Rhino Rescue, USA and Save African Endangered Wildlife Foundation, have been working energetically and diligently to save the rhino and I wish to give my personal thanks to Tom Schneider and Bob Schule who are our first two witnesses, for the enormous knowledge they've given us, the perceptions that they have lavished upon us and the encouragement and support they've given us to do what we could to contribute to progress.

African governments such as Kenya and Zimbabwe are devoting considerable of their limited resources to maintaining this magnificent part of their natural heritage. The zoological community around the world is trying to breed rhinos and other endangered species and restore them to their former homes. Governments and non-government organizations are working together through the International Union for the Conservation of Nature and making positive initiative possible.

Industry is also contributing to the foundations through conservation efforts as we'll be hearing today from an industry representative. We consider this hearing about the rhinos to be symbolic of our global effort to preserve biological diversity and this applies as much to the tropical rain forests in Latin America and other endangered species.

This is really a classic case of man's destruction of the biota, the plant and animal species that we inherited. We're losing biological diversity at a pitiful and dangerous rate. By the end of the century,

scientists estimate that we may lose as many as 25 percent of the world's animal and plant species.

To look at it from a very selfish human perspective, about 40 percent of all of drugs and medicines come from plants. So, who is to say that the tropical forest that we destroy today and lose for all time, did not contain plants that could have been a cure for cancer; could have been a cure for AIDS; could have been a cure for many of the maladies that still plague us.

If the rhinos go extinct in the next couple of decades, as they will if further significant interventions aren't made; if this happens on our watch, we will only have our own species, mankind to blame. Saving the rhinos won't be easy. We have learned that rhino conservation takes a great deal more than drawing a line on the map and labeling it a sanctuary.

It takes science and technology and people working together, using science and technology for this great and noble purpose. It will take broad scale education programs in Asia to cut down on the demand for rhino horns and elephant horns. It will take enforcement and technology—helicopters, airplanes, and funding.

Most important of all, it will take commitment and groups like Rhino Rescue, Inc. and the other groups that you'll be hearing from that are powering our commitment. Rhino Rescue USA is the only all volunteer group completely devoted to saving the black rhinoceros from extinction. They and other highly qualified and dedicated witnesses here today, have been leaders in the effort to save the rhinos from extinction and they deserve our admiration, respect and enthusiastic support.

Key questions remain. What more can we do as Members of Congress? What will it take to save the rhinos? What can we learn from rescuing rhinos and studying the problem and getting hands-on field experience with the problem, that will help us conserve all forms of biological diversity?

[The prepared opening statement of Mr. Scheuer follows:]

PREPARED STATEMENT OF HON. JAMES H. SCHEUER

The Subcommittee on Natural Resources, Agriculture Research and Environment will come to order. In today's hearings, the Subcommittee returns to a topic which it first examined nearly two years ago: efforts to prevent the extinction of the rhinoceros.

Rhinos have been on the Earth for 30 million years, much longer than our own not-so-humble species. For millenia, rhinos have thrived, populating Africa, India, and much of the Near East, and even reaching the East Indies. Today, rhinos are reduced to remnant populations, persisting only in protected pockets, under the watchful eye of armed wardens. We have assailed the habitat of rhinos, causing their population to plummet as our own human population soars exponentially to disaster.

More recently, the destruction has been even more direct as poachers have killed tens of thousands of rhinos. Only the horn is taken. It is sold at exorbitant prices to be made into daggers for North Yemen or pulverized into powder to fulfill the fanciers of Oriental folklore.

At the turn of the century there were more than 1 million rhinos in Africa alone, but today less than 3,500 black rhinos remain. All other species of rhinos are also imperiled.

This Subcommittee held hearings in the 99th Congress that led to Singapore signing CITES (Convention on International Trade in Endangered Species), greatly reducing the illegal trade in rhino products. Private groups like Rhino Rescue USA have been working energetically and diligently to save the rhino. African govern-

ments such as Kenya and Zimbabwe are devoting their limited resources to try to maintain this magnificent part of their natural heritage.

The zoological community is trying to breed rhinos and restore them to their former homes. Governments and non-governmental organizations are working together through the International Union for the Conservation of Nature. Industry is also contributing to conservation efforts. We will be hearing from representatives from these groups today.

Rhinos are symbolic of our effort to preserve biological diversity. We are losing biological diversity at an unprecedented rate. By the end of the century, scientists estimate that we may lose as much as 25 percent of the world's animal and plant species. If the rhinos go extinct on our watch, we will have only our own species to blame. Saving rhinos will not be easy. We have learned that rhino conservation takes much, much more than drawing a line on a map and calling it a sanctuary.

It will take science and technology working together. It will take cooperation among people. It will take education, enforcement, and money. Most of all it will take effort. It will take efforts by groups such as Rhino Rescue USA, the only all-volunteer group completely devoted to saving the black rhinoceros from extinction. They and the other highly-qualified and dedicated witnesses here today have been leaders in the effort to save rhinos from extinction, and they deserve our admiration and enthusiastic support.

But key questions remain:

What more can we do?

What will it take to save rhinos?

And what can we learn from rescuing rhinos that will help us to conserve all forms of biological diversity?

Before I call the first witness, let me turn to my distinguished Ranking Republican colleague from Rhode Island. Ms. Schneider has always shown a keen interest and has been a leader in conservation of biological diversity. I understand that she is here directly from a hearing of another Subcommittee on which she serves, which today considered the plight of endangered elephants.

Mr. SCHEUER. At this point, before calling the witnesses, let me yield to my two colleagues—oh, three colleagues now. Great. All three of them are deeply committed to the challenge of preserving biological diversity of both animal and plant life. So, first I'll yield to my distinguished colleague, Claudine Schneider, the ranking minority member of this Committee, who has exercised such superb leadership in the entire broad spectrum of preserving biological diversity. Congresswoman Claudine Schneider of of Rhode Island.

Ms. SCHNEIDER. Thank you, Mr. Chairman. Let me say that I very much appreciate your calling together our Committee and I'm glad that the Republicans have come forward in full force to show their colors for conservation. I couldn't help that little partisan aside there, Mr. Chairman.

Mr. SCHEUER. There's enough work for all us, Congresswoman.

Ms. SCHNEIDER. At any rate, I think that it is only appropriate that as we look at the tragic situation, that our witnesses will discuss this today and some of the variety of solutions. There's no question that there are numerous players and enough work to go around for all of us.

I'd like to commend those African nations that have acted responsibly with very strong measures to preserve the rhinoceros and I'd also like to commend the various private organizations who have set out priorities, raised funds and often times, on a volunteer basis, have provided the kind of expertise and monitoring that is so very necessary to have an effective program.

It really is tragic when you realize that there once were 120 different species of rhinoceros that roamed the earth and to think now that there are only five different species with a population of about 9,500. The black rhinoceros, having been reduced to less than

4,000, certainly should be grabbing our attention for immediate action. I think that it's important to recognize that we can focus that action in specific areas when 85 percent of the black rhino population does come from just four countries—from Kenya, Zimbabwe, Namibia, and South Africa.

Therefore, that's where our conservation efforts really should be focused. It's with that kind of targeting that I believe we can be very successful. I think we have to recognize the cause of the decline of the rhinoceros also. The decline is due to a combination of economics and folklore. The fact that the rhino horns have been used for dagger handles or for aphrodisiacs or for various medical potions is something that we need to take into consideration.

Also, trade in rhino horns does continue now in North Yemen, the United Arab Emirates, and Burundi. When we look at the solutions, the solutions also have to be a combination of economics and not folklore, but rather economics and science. The United States certainly does have the scientific data, the expertise and the capability to provide some leverage to those countries that are not moving in the right direction.

The United States should also take a leadership role in supporting the various international groups and those nations who have acted responsibly in protecting the rhinoceros. Furthermore, the United States must strengthen the ability of CITES to contain the illegal trade in rhino horns. As I mentioned in a hearing this morning on elephants, my Subcommittee on Investigations and Oversight will next month be looking at the whole CITES support to see where there are major loopholes.

Finally, let me say that Congress must and certainly does have another role to play and that is in the passage of H.R. 4335, which is the Biological Diversity Conservation Act which will put the United States on a surer footing for providing leadership on a global basis, for biological diversity. I have no further comments Mr. Chairman and my colleagues also have no further comments, so we're ready to hear from the witnesses.

Mr. SCHEUER. Let me say how delighted I am to have all three of you here. It's a testament to how bipartisan this whole mission is and I value that very much.

Okay, let's hear now from our first panel. I'm deeply indebted to both of the panelists, Dr. Thomas Schneider, Chairman of Rhino Rescue USA and Bob Schule, a Trustee. These two men have been at the forefront of the effort to save the rhino for years.

On a purely volunteer basis, they helped organize our hearing two years ago; helped to direct our efforts after the hearing; pointed us—Bob Schule was with us when we went to China and jawboned top officials in the Chinese government about cutting off the rhino trade.

He orchestrated our successful approach to Ambassador Coe of Singapore and within days of our making contact with the Ambassador, the government of Singapore announced—we indicated we'd like to take a trip over there to talk to the Prime Minister about this subject—and before we could call "wheels up" on that trip, they sent us a flash that while they really didn't welcome our visit; they had decided to join CITES, the International Convention.

Sometimes jaw-boning or prospective jaw-boning in the future can help.

We're delighted to have you both. Tom, why don't you start off and take such time as you may need and then Bob will testify and then, of course, we'll have some questions for you. Your full prepared statements will be printed at this point in the record, so simply chat with us informally. If I've forgotten about any of the tiny little incremental advances that we've made, or tiny little victories, please, both of you, remind us.

STATEMENT OF DR. THOMAS J. SCHNEIDER, CHAIRMAN, RHINO RESCUE, U.S.A.; ROBERT M. SCHULE, TRUSTEE, RHINO RESCUE, U.S.A.

Dr. SCHNEIDER. Thank you very much, Mr. Chairman and the other members of the Subcommittee. We greatly appreciate your holding these hearings today, followup hearings to the hearings that were held in September of 1986. We appreciate this because the effort which had really begun several years before that, that was brought to the attention of Congress at that point in time, and really to the American public, continues. There are many things that are still left to be done.

We can say that there definitely has been progress in the last couple of years and a significant amount of that progress has been directly—came out of those earlier hearings. In short, the animal is in a more secure position than it was in September of 1986, but its preservation is a long way from being certain.

Several things specifically arose out of the hearings. You have mentioned a couple of times Singapore's action. There was a tremendous amount of effort on the part of other wildlife conservation organizations such as World Wildlife that had been pressuring Singapore for a number of years yet those hearings and your individual intervention with Ambassador Koh may have been the straw that broke the camel's back.

The hearings also helped focus the State Department's attention on the problem. Since those hearings, they have been extremely cooperative in efforts to curtail trading in rhino products and in trying to help us with foreign aid. Specifically because arising out of these hearings and their cooperation, the U.S. Ambassador and the British Ambassador met along with Esmond Bradley Martin, who will be testifying today, with the Yemenese government and out of that came a seven-point plan to help terminate the trade in North Yemen.

Regretfully, that has not been a total success and is one of the strongest arguments for a continuation of pressure from the United States, and leadership from the United States. In addition, through the cooperation of the State Department, the President of Rhino Rescue USA, Nancy Clark Reynolds, who regrets that she's not here today, last summer made a trip through Africa.

Meeting with the U.S. Ambassador to Burundi, she sat down with senior officials from Burundi and made clear to them the very strong position of the United States Government on rhino trade and urged them to change their position. As a consequence of that, they came back later in the autumn and indicated that they were

interested in joining CITES. Again, this is not a case where the trade has been totally cut off.

It's much like North Yemen, but we've made some progress and again, it's another case where we have to keep up the pressure. It was a direct result of the action that came about from Congress. This summer, she's going to return to Burundi and she's going to meet with them again and continue to try to apply pressure.

Having these hearings, this second set of hearings, will simply reinforce her case, because it shows that there is a continued interest on the part of the United States Government and of Congress to shut off the trade. Resulting from the hearings, the Agency for International Development has expressed a strong interest in supporting rhino conservation.

They previously, in 1987, set aside $100,000 for rhino conservation. They are now looking at the next fiscal year at doubling that amount for rhino conservation. The dollars in U.S. budgetary terms are fairly small, but in terms of the impact on rhino conservation, are extremely important.

One of the twists in their funding is that the money has to be matched by private funds, so in effect, the hundred thousand or two hundred thousand that is being proposed, brings in $400,000 for rhino conservation which again, is a very good example of the public and private sectors working together for a cause that benefits us all. It is a model that is being used repeatedly across Africa, which a number of the people, include Dr. Nduku from Zimbabwe, will be talking about and will be talked about by other witnesses as it relates to Kenyan efforts.

One of the more important things that has also come out of the earlier hearings and is one of the important consequences of these hearings is simply the education of the public. Since September of 1986, there have been a number of major television and radio and press reports about the state of the rhinoceros. Most of the major newspapers in the United States have covered extensive stories about the rhinoceros and I think it really has come to a head this last February when National Geographic put on an hour long special about the rhinoceros.

It was a tremendous step forward to educating the public which has made it easier for the U.S. Government to say that truly the people of the United States are concerned and it has also has made it easier to raise money from private individuals to help on these conservation efforts. So to a certain extent, it's an indirect result of the hearings, but actually a very important result of these hearings.

An important result of this second set of hearings is that it keeps the public focus on the issue, which allows the non-government organizations to continue their efforts and it also sends a very strong international message to the countries overseas. We've received a number of comments from African governments about the importance of these Congressional hearings and a number of comments requesting that we have a second set of follow-up hearings to monitor how things are going.

You may not have received the direct feedback from these countries and citizens overseas, but it has made a very big difference in terms of coalescing attention on the problem. The non-government

organizations, the non-profits, both here in the United States and overseas, find their efforts much easier because of the support and attention that you've given to the issue.

There are still priorities. The problem has not been solved. You're going to hear in today's testimony from a wide range of different experts about efforts that are going on in specific African countries, and overall results, including in Asia, about what's going on. But there are still priorities that are there and need attention. Included in those is continuing education.

One of the problems that happens too often is that there is a great flurry of attention to a problem, immediate efforts and resources are focused on the problem and then a short time later, there's no further attention paid to it and basically, efforts start to fade away. In the rhino problem, we are on the brink of losing the animal and if we do not have a constant pressure and leadership, we are not going to be successful in saving the animal.

It's extremely important that money and resources continue to flow. There can be assistance from the Park Service in terms of training park rangers overseas. There can be assistance in terms of hard goods. One of the things—there's been a vital need that the State Department has been working on in trying to get helicopters from the United States, possibly surplus helicopters from the Defense Department to help in anti-poaching efforts. The same is true with light weight airplanes and small airplanes such as Cessnas.

They are available in the United States. The United States is one of the few countries that has large amounts of these craft. They are extraordinarily expensive to fund through private resources. The efforts of the U.S. Government can be extremely important in providing these resources. The seed money that comes through AID is important. Again from budgetary points of view, it's a very small amount of money. Matching it with private resources not only sends a message of commitment and support from the U.S. Government, but is also extremely important in providing the seed money for many of the projects that take place.

Finally, there are things such as legislation, such as the bill that Congresswoman Schneider mentioned that are extremely important for sending the message to the world that the United States is firmly committed to maintaining the biodiversity on the planet. One of the major justifications for this hearing, which we very strongly believe in, is that there are a lot of lessons that we in the wildlife community are learning from the conservation efforts relating to the rhinoceros that are directly applicable to conservation of other species.

From that point of view, really what this hearing is, is a case study on a problem that you find not just with the rhinoceros, but with many other species. To a certain extent, many of the same problems were raised in the hearing earlier this morning on the elephant. There are some different problems relating to that animal, but many of the same issues in terms of how you conserve the rhino, and the resources that are needed, are also found with the elephant.

From that point of view, these hearings are extremely important. The hearings in 1986 produced clear results and we're hoping to

continue to produce results with the leadership and pressure that can be brought to bear through this Committee. Thank you.

[The prepared statement of Dr. Schneider follows:]

STATEMENT OF
DR. THOMAS J. SCHNEIDER

CHAIRMAN

RHINO RESCUE USA, INC.

BEFORE THE

SUBCOMMITTEE ON NATURAL RESOURECS,
AGRICULTURE RESEARCH AND ENVIRONMENT
OF THE
COMMITTEE ON SCIENCE, SPACE AND
TECHNOLOGY

22 June 1988

Congressman Scheuer, Members of the Subcommittee, thank you for this opportunity to once again bring the urgent problem of rhinoceros conservation to the attention of the U.S. Congress. As a result of this Subcommittee's timely consideration, in September of 1986, of the rhinoceros' imminent extinction, the animal is in a more secure position today.

Two positive developments in the rhino's story can be traced directly back to the Subcommittee's hearing. The first was Singapore's decision to ban the import and export of rhino horn and rhino products. As a major trading center in the illicit commerce that wiped out nearly 80% of the African rhinos between 1970 and 1985, Singapore was a chief objective of those who sought to close down the trade. Thanks to your personal intervention, Mr. Scheuer, and the pressure that the Fish and Wildlife Service and the State Department were able to bring to bear on Singapore, that goal was achieved. Shortly thereafter, negotiations began between the U.S. and British Ambassadors to North Yemen and Yemeni officials to dry up the demand for rhino horn. Although Yemen has yet to completely effect its ban on importation, or completely quench the desire for rhino horn dagger handles, the six-point plan developed to reach that objective was a solid first step.

Because of the State Department's support, our president Nancy Reynolds was able to meet with officials in Burundi, which superseded Singapore as an entrepot in the rhino horn trade.

Nancy conveyed to the Burundis the depth of U.S. concern over the illegal trade in rhino products. Since then Burundi has announced that it will ban all import of rhino horn, and that it plans to join CITES, the Convention on Trade in Endangered Species of Fauna and Flora. Nancy will be traveling to Africa again this summer for further oversight on behalf of the rhino and Rhino Rescue USA.

Secondly, as a result of the heightened interest and concern for rhinoceros preservation demonstrated by the first hearing, in 1987 the U.S. Agency for International Development, A.I.D., set aside $100,000 of its budget to preserve biological diversity specifically for rhinoceros conservation programs. The money funded projects from Kenya to North Yemen to Nepal. We understand that A.I.D. expects double that grant in 1989, and we commend the agency for its commitment to the rhino.

Increased activity by the U.S. Government has been only one offshoot of the hearing, Mr. Scheuer. Private organizations here in the U.S. and abroad have also made great strides in raising funds and awareness for the endangered rhinoceros. Governments and private individuals in those countries aggressively protecting their remaining rhino populations have received assistance in the form of fencing for sanctuaries, tires for patrol and surveillance vehicles, scientific expertise on breeding and management, and in a host of other ways. You are familiar with many of these organizations: The World Wildlife

Fund, Wildlife Conservation International, SAVE, the African Wildlife Federation, and of course, Rhino Rescue USA. Rhino Rescue USA, an all-volunteer organization, has focused its energies on bringing concerned groups and individuals together -- by helping to assemble the witnesses for this hearing today and at the first two years ago, and recruiting corporate sponsors like Armstrong Tire, which will testify on its rhino conservation activities later this afternoon.

Now that the word is out and people are interested and aware of the rhino's plight, we need to move into the next phase of rhino conservation. Thanks to the dedicated efforts of people like Willie Nduku, David Western, Tom Foose, Oliver Ryder, Eric Dinerstein, Esmond Martin and Tony Dyer, the immediate crisis in rhino conservation has passed. Populations are stabilizing in Kenya, Zimbabwe and Nepal. But the fight is far from over. Conservation groups, wildlife officials and scientists now face a different challenge: organizing the priorities, the strategies and the resources for rhino conservation over the long term. Sanctuaries in Kenya and Nepal and Operation Stronghold in Zimbabwe are only part of the solution. Questions as basic as providing the proper mix of vegetation, range and water, and as complex as managing the entire rhino gene pool to preserve the maximum biological diversity of the species, must now be addressed more fully.

The rhino's case is unique, and the attention it is has received remarkable. As you said at the last hearing, Mr. Scheuer, the plight of the rhino is an "acid test" for our ability to preserve any species. The questions which face conservationists, NGOs and the U.S. Congress in regard to the rhino will come up again, when other species which suffer from contact with man then need man's protection for their very survival. We hope this hearing today provides a valuable resource for such future conservation efforts.

See APPENDIX.

Appendix to Testimony
by
Dr. Thomas J. Schneider
Chairman, Rhino Rescue USA, Inc.

Every three to four years, the world loses another 50% of its rhinoceros population. The rhino's contemporary and dramatic demise makes it the best-documented loss of species to date. The fight to save the rhino thus makes as an excellent case study in state-of-the-art endangered species conservation. Of the five species of rhinoceros (white, black, Indian, Javan and Sumatran), the African black rhino stands out because of the swiftness and magnitude of its decimation, and because conservationists recognized the animals' plight early enough to enable them to take action. This hearing will focus on the African black rhino, although many of the witnesses also work with the other species.

Many different public and private groups are currently involved in rhino conservation. The Government of Kenya has a well-developed Rhino Rescue Plan; Zimbabwe follows a less articulated strategy but is actively working to preserve its remaining wild rhino populations from marauding bands of poachers. Nepal has also established a program, to safeguard its population of Indian, or greater one-horned rhinos. The leading non-governmental organization involved in rhino conservation is arguably the African and Elephant Rhino Specialist Group (AERSG), based in East Africa. An arm of the International Union for the Conservation of Nature, the AERSG provides a forum for discussion, information exchange, and policy development, offering some limited financial resources. A plethora of other NGOs deal at least peripherally in rhino conservation. In the U.S., the American Association of Zoological Parks and Aquariums is a coordinating body for much of the research being conducted by American zoos and conservation biologists. Organizations like Rhino Rescue USA, Wildlife Conservation International and the World Wildlife Fund provide a mix of funding, public relations, and scientific expertise. The U.S. Agency for International Development provided $100,000 in matching grants for rhinoceros conservation in 1987 as part of its budget for biodiversity programs, and worldwide is contemplating making $200,000 available in 1988.

Some of these groups and individuals are working in concert; others are working independently on what is an increasingly complex task -- shepherding the remaining populations of an endangered species. Three major areas of activity will be addressed at the hearing: 1) ending the trade in rhino horn and rhino products; 2) thwarting poachers through the establishment of sanctuaries and armed anti-poaching squads; and 3) managing remaining populations intelligently to ensure their long-term survival.

THE INTERNATIONAL TRADE IN RHINO HORN

The Subcommittee first examined the plight of the rhino in the 99th Congress. At that time, rhino conservation was in its infancy, and to a great extent, the Subcommittee's objective was simply to sound a call to action. The hearing focused on the immediate necessity of protecting rhinos from poachers who slaughter the animal for its valuable horn. Used in traditional folk medicines in the Orient, and carved into ceremonial dagger handles in the small Arab nation of North Yemen, the rhino's horn is worth its weight in gold. For a fraction of that price poachers from impoverished African states killed thousands of rhinos between 1970 and 1985.

The Subcommittee urged a stronger U.S. role in ending the international trade in rhino horn and in stifling the demand. Singapore was identified as a major culprit in the trade, and North Yemen as the final destination for more than 50% of the horn on the market. As a result of the hearing, and pressure exerted by the Fish and Wildlife Service and the State Department, Singapore banned all trade in rhino products and agreed to join CITES, the Convention on Trade in Endangered Species of Fauna and Flora. CITES signatory nations, of which there are over 90, have agreed to prohibit trade in a long list of endangered species. Singapore's acquiescence to the pact signaled a major coup for rhino conservationists. Other nations have since stepped in to fill the gap left by Singapore, however, -- chiefly the United Arab Emirates and Burundi.

With encouragement from the U.S. and British Ambassadors, in late 1986 North Yemen developed a 7-point plan to curb consumption of rhino horn and ban its import. The plan included an exhortation by the Imam, the religious leader, that killing off a species was an affront to Allah. Effecting this change has been difficult, however, for Yemeni men have demanded rhino horn handles for their daggers, or jambiyyas, since the Queen of Sheeba reigned. In 1987, U.S. AID funded a study to assess Yemen's compliance with the 7-point plan. Consumption of the horn is down, but largely due to the country's sagging economy. No longer fueled by wages imported from the Saudi Arabian oil fields, the demand for expensive rhino horn jambiyyas has dropped. Cheaper cow or water buffalo horns substitute. The Yemenis have not yet effected a real change in their behavior, however, because rhinos possess no cultural significance for them. Other endangered animals do have a cultural value in Yemen -- i.e., the heron-like ibis -- and it might be possible to piggyback concern for the rhino on that sensibility. However, North Yemen has no office or department to administer a wildlife conservation program, even to protect the ibis. Though the interest exists, the funds and the infrastructure do not.

THE SANCTUARY SOLUTION

Rhino sanctuaries have proved an effective, albeit expensive, answer to the poaching threat in Kenya. At the first rhino hearing, a representative from Kenya unveiled their Rhino Rescue Plan, based on a network of government and private rhino sanctuaries. Ringed by miles of electrified fence and patrolled by surveillance units, sanctuaries provide a refuge in which isolated animals can be translocated, protected monitored, and encouraged to breed and reproduce. Since the initial hearing, Kenya has opened its first sanctuary at Lake Nakuru National Park, and has translocated 13 rhinos there from other parts of the country. The New York Zoological Society has fully funded a second sanctuary at the Nairobi National Park. Nairobi's proximity to a major population center makes it the park best attended by native Kenyans. Other government sanctuaries are in the development stage.

Zimbabwe relies on its armed anti-poaching squads, rather than sanctuaries, to protect its large populations of black rhinos. Approximately 800 still roam freely in the Zambezi Valley, and Zimbabwe is strongly committed to maintaining these wild populations. Operation Stronghold, as the effort is known, has created considerable controversy because personnel may shoot to kill poachers in self defense. An important support for this strategy is an internal investigative service which aims to detect would-be poachers and the middle-men who transport rhino horn in and out of Zimbabwe.

Zimbabwe is also translocating rhinos from vulnerable border areas to the interior of the country. The efficacy of Operation Stronghold as a conservation strategy is currently under assessment internally in Zimbabwe and by NGO donors. An obvious alternative is the Kenya model of rhino sanctuaries. Scattered and unprotected black rhino populations also remain in Tanzania, Zambia, Cameroon and Chad. These animals will also need to be translocated or placed in sanctuaries.

The costs of building and maintaining sanctuaries are prohibitive: upwards of $1 million to develop, and $100,000 per year to operate. In Kenya, private citizens have helped to ease the burden by constructing private sanctuaries on private land. The cooperation between individuals and the state is a unique feature of Kenya's sanctuary program, and has been central to its success. The state owns the rhinos, the private citizens bear the costs of owning and operating the sanctuary, and together they are attempting to conserve one of Kenya's most valuable natural resources.

MANAGING THE REMAINING RHINOS FOR THE LONG-TERM

"Management" may seem an inappropriate term to apply to a wild animal like the rhinoceros, but when population levels drop precipitously, the remnants must be actively managed to enhance their chance at long-term survival.

Monitoring

It is increasingly apparent that undertaking even the most basic conservation actions requires more accurate information on rhino demographics than is currently available. Censuses must be taken, to determine how many rhinos actually exist. Census techniques range from aerial surveys to tracking footprints and dropings on the ground. Identified populations must be monitored regularly to provide information on current status and trends. Pinpointing the animals' distribution and location enables better surveillance by anti-poaching units. For small rhino populations in relatively small areas, like the private sanctuary at Lewa Downs in Kenya, these tasks are quite manageable. But for larger populations ranging freely, like those in Zimbabwe's Zambezi Valley, monitoring animals becomes problematic, and requires the development of new technologies.

Habitat

The initial challenge to rhino conservation was to protect the rhinos. Now that many animals are contained in sanctuaries, questions and problems have arisen regarding the proper habitat for their survival: what kind of vegetation, minerals, water, and space do they require? A better understanding of rhino ecology and behavior will provide the basis for effective management.

Multiple-Use Strategies

Managing habitat also leads to questions regarding the multiple-use of public lands. In Kenya and Zimbabwe, wildlife parks and reserves feel the pressure of encroaching human populations. In Kenya native tribes like the Masai water and graze cattle on the same lands that wildlife occupy. In Zimbabwe researchers from the World Wildlife Fund are developing a justification for wildlife conservation as an economically competitive form of land-use. Joint-use and multiple-use scenarios will be necessary to balance the needs of wildlife and human beings.

Developing a Local Conservation Ethic

Long-term success in any conservation program will require more than money and materiel from wealthy Western donors. Nurturing a local interest in conservation has already begun. Wildlife clubs which instill a respect for Kenya's native animal populations have become very popular with both young people and adults. Developing incentives for conserving animal resources at the local level will greatly benefit Kenya's number one industry -- tourism. In Zimbabwe, suggestions have been made that wildlife ranches be established where hunting is allowed on a fee basis, and the fees revert to the local population. The locals will then be responsible for maintaining the wildlife as their own source of livelihood.

Breeding and Reproduction

In order to revitalize and repopulate the species, a coalition of Western zoos and African and Asian authorities have embarked on an ambitious program of captive breeding. The umbrella organization for much of this work is the American Association of Zoological Parks and Aquariums (AAZPA). As the rhino populations become smaller and more fragmented, inbreeding and other genetic problems proliferate. The AAZPA is trying to coordinate the breeding of captive rhinos in U.S. zoos with rhinos in the wild. Minimum population levels needed to keep the rhino a viable species are also being established and will be central to any coordinated rhino conservation strategy.

The Center for Reproduction of Endangered Species at the San Diego Zoo is carrying out much of the research needed in order to make management decisions at sanctuaries and parks. They recently discovered, for instance, that black rhinos in Kenya are genetically distinct from black rhinos in Zimbabwe. Interbreeding would blur the gene pools and thus defeat attempts to preserve biological diversity. Other problems could occur when genetically dissimilar animals, which by all current measures are similar, are bred and produce sterile offspring. Discoveries in genetics, reproductive physiology, endocrinology, and animal behavior will all impact on the successful breeding of rhinos.

Mr. SCHEUER. Thank you very much, Dr. Schneider.

I would footnote your testimony with the comment that we met with the Assistant Secretary of State for Conservation, Environment, Health and Natural Resources just this morning. He is the son of Paul Nitze, incidentally, and he has inherited the Nitze gene pool. He is a brilliant young man, Bill Nitze, and I am convinced his heart is in the right place. He has been very cooperative with us, and he happened to mention in passing, the long months of effort that they have expended in trying to pry loose one helicopter, one used helicopter, from the Army.

I suggested that he write us a letter, that then the Army would have to take cover because I am going to unleash Claudine Schneider, Bob Smith, Paul Henry, and Alphonse D'Amato and see if some gentle massaging by these redoubtable political leaders of the same party of this Administration in Washington can't help unleash not one but several of these helicopters to help any of the countries in East Africa that wished to do helicopter surveillance. So who knows. We'll do a little genuine political arm-twisting in the best traditions of our great two-party system and see if we can't add a little momentum to this effort to bring some helicopters to this rescue mission.

Dr. SCHNEIDER. That sort of leadership is exactly what is needed, and Dr. Nduku can talk specifically about the war that is literally—the war that is going on to try to save the rhinoceros in Zimbabwe, and can explain in detail the role that the helicopters would play.

Trying to raise money over the last two years along with a number of other wildlife conservation groups such as SAVE and World Wildlife to fund these helicopters, it's very difficult for private groups to put together the large sums that are needed and surplus helicopters are available and can make an enormous difference.

Mr. SCHEUER. If they are not made available for this purpose, they might be made available for some of these insecticide and herbicide-spraying programs that only further damage the environment, so it is not only a question of what they would accomplish if assigned to this duty, but the damage that they wouldn't be doing if they were doing some of the other things that the Defense Department traditionally uses helicopters for. There's a little double whammy here, okay?

Now I would like to address one request to all of the witnesses who will be testifying before us. There are several international organizations which conceivably could be helpful in attacking this mission with us, in addition to our own U.S.A.I.D.

The OECD in Paris could perhaps be helpful. They have large aid programs with all of these African countries. The World Bank has financed various projects in these countries. The OAU, the Organization for African Unity—as I say, all of these institutions, as well as A.I.D. have relations with these countries.

Should there be any linkage, should there be any jawboning, what kind of initiatives could we make with OECD and the World Bank and the OAU to have them put the whole question of preserving biological diversity in general and help assure the survival of the rhino and the elephant in particular—what kind of interven-

tions could they make formally or informally? What kind of jawboning? What kind of linkage and what kind of initiatives should this Committee make? How should we be in communication with these institutions and what should we be suggesting to them that they might do or that they might think about? Okay?

Now we're very happy to hear from Bob Schule, who is a trustee of Rhino Rescue and who has played such a key role in enhancing our effectiveness and in directing us to this great and noble mission that we are all so deeply committed to.

Bob Schule, please take such time as you may need.

Mr. SCHULE. Thank you, Mr. Chairman. It's always an honor to be with you. We have done so many things over the years and it is indeed a pleasure to deal with you and your staff on something of this importance.

You have, as always, assembled a very distinguished group of technical experts and I think we all would be better served listening to them as opposed to the likes of me. I think I would really simply like to say one thing and that is just to reiterate something that Tom has said and I think that you are going to hear it over and over again at this hearing.

In my travels in Africa this past summer with my partner, Nancy Reynolds, who had a lengthy trip there and is about to go back to Africa for five, six weeks and meet with many of the leaders in the various African nations, as Tom has pointed out, the one thing which was continuously hammered home to us was the tremendous importance of the work of this Subcommittee under your leadership and those of your colleagues. The impact that has had in the attitudes of people over there, as well as over here just cannot be overstated. I would like to join with everyone associated with Rhino Rescue in thanking you and in congratulating you for your leadership. I will be in big trouble with my partner if I don't say that Nancy Reynolds extends her best wishes to Congresswoman Schneider and Congressmen Smith and Henry. She wishes she could be here and we hopefully will have a statement to submit for the record, if that would be permissible——

Mr. SCHEUER. Without objection, so ordered.

Mr. SCHULE [continuing]. And any way that Rhino Rescue can be of assistance, we hope to fulfill whatever role you see.

Thank you.

Mr. SCHEUER. All right, Claudine Schneider.

Ms. SCHNEIDER. I'd like to thank both of you for your very complimentary words about the work of this Subcommittee and as we by nature, the Chairman and my colleagues, are not inclined to rest on our laurels, the next focus is—Yemen used to be about half of the trade in rhino horns and what I am anxious to know is how much has the demand for rhino horns been reduced by this country's most recent efforts?

Dr. SCHNEIDER. Esmond Bradley Martin, who is probably the preeminent expert on the rhino trade, is going to be testifying and will get into great details about this. One of the problems is that as we were moving forward with North Yemen, the United Arab Emirates has pulled out of CITES and consequently, what seems to be occurring is that there's a shift in the trade rather than a major reduction in the trade.

One of the more pessimistic notes that I feel is going on in the whole rhino conservation problem is that the market does not seem to be disappearing. Now one of the things that you automatically get to is supply and demand, so demand could be disappearing commensurately with the reduction in numbers of rhinos, but there is still sufficient demand that those few rhinos that are left are seriously endangered.

That puts more pressure on us to try to shut down the trade. One of the disturbing analogies that I can see potentially here is that we may be facing something like the drug trade. I personally find that very disturbing because it means that there has to be relentless effort. It clearly means that we may have to do more on the conservation side and we may in the end never be able to totally shut down the market.

That doesn't argue for not doing it. It does make you start to look at the work the Dr. Martin is doing much more carefully, because when you have limited resources you really have to decide where you are going to be allocating your resources.

It is clear at the same time that the leadership and effort of different countries like the United States and Great Britain, which has gotten more actively involved in this, is critical to try to slow the demand down. I don't have a simple answer for that. Dr. Martin will give greater details, but from an over-all viewpoint, I think we may be dealing with a drug problem.

Ms. SCHNEIDER. My next question was going to be focused on the United Arab Emirates, and are you aware of any efforts, or is your organization involved in any efforts to work with that area?

Dr. SCHNEIDER. We have had a number of off-the-record discussions with people in the State Department, in the foreign branches of the Government, and one of the problems is that there is a—what we have gotten back in general terms is, that there is a larger problem that is going on in that part of the world, the war in the Persian Gulf. Consequently the willingness to put enormous pressures on that country, which is in a critical position from an international defense and strategic perspective, is really relatively limited.

They say candidly, that we can totally agree with you but there is an Iraqi-Iranian War and so forth and that means far more to us than the rhinos. That is the perspective that we have received. There may be other people who are testifying who can bring additional information to bear on that.

Ms. SCHNEIDER. Great. Well, thank you both for your insights, comments and especially for the very good work that you are doing.

Dr. SCHNEIDER. Thank you.

Mr. SCHEUER. Congressman George Hochbrueckner of the great state of New York.

Mr. HOCHBRUECKNER. Thank you, Mr. Chairman. I am here to listen and thank you very much.

Mr. SCHEUER. We're delighted you are here, George.

Congressman Bob Smith of New Hampshire.

Mr. SMITH of New Hampshire. You are going to get me in trouble yet. Thank you, Mr. Chairman, I certainly want to compliment

and commend you gentlemen for what you are doing. I wish there were more like you throughout the world.

Just a couple of questions. One of the things that concerns me as we look at this whole biodiversity issue is that we, with obviously good intentions, look at individual species, the rhinos, the chimps, the elephant, whatever it happens to be, looking specifically at Africa for the moment. Sometimes I wonder if we are overmanaging one species to the detriment of others. Could you just respond to that in some general terms.

Are we doing that? Is it creating problems for ourselves, you know, if one gets very active in saving the rhino, what else are we destroying in saving the rhino or take another species. Is this in fact happening? There has been some criticism that that may be the case, that we are not looking at the total picture, we are looking at a series of Subcommittees, if you will, that are looking at species after species and not really seeing the whole picture.

I guess if they are seeing the whole picture, we may still be causing the habitat destruction or perhaps the species destruction of others to preserve one. As these people in Africa, for example, try to protect from poachers the rhino, what are we neglecting?

Dr. SCHNEIDER. I think your question is exactly on target.

If you, and I think that is potentially is a serious problem, in fact look at the rhino and I think one of the reasons that we view the rhino as an appropriate case study, is our learning about what it means to be saving specific endangered species and what we are learning from that is, that it is critically important to preserve the entire habitat. It is extremely important to preserve them in situ, in their natural habitat and that there are serious consequences from not doing that—that you may be losing a broader biodiversity.

Specifically as it relates to the rhino, one of the things we are seeing is that by focusing the attention on, in this case a very large mammal, in fact more effort is going into preserving the habitat because there is much greater concern about encroachment of people from outside either poachers or in terms of neighboring farmers. It is forcing people to—it is forcing the African countries to devote enormous amounts of energy and resources educating their local public about the importance of wildlife conservation.

We are finding where sanctuaries are being set up, that in fact the sanctuaries don't just include rhinos, they include the full range of plants, animals that you can find native in Africa. In real terms, what is going on, the focusing on the rhino, is in fact a wedge that is going in to creating a much greater sense of conservation. In some ways it might be easier to preserve a habitat if you can sort of say, well, there is this very prominent endangered species in this area.

Now I think you can imagine situations where the focus on one particular animal might create serious problems, but I think in the case of the rhino, one of the derivative benefits is in fact there is a lot more conservation going on, and it is being much more carefully thought about, and the resources that are going into guards, going into park management is really preserving a much greater area than would be occurring perhaps if this was not a problem.

Mr. SCHULE. Can I just also add, I think, that it seems clear to all of us that without these efforts, the chance to protect the rhino and

save the rhino would be futile. It just wouldn't be successful and I guess at that point—and the elephant from what we have heard recently is in the same situation—if in fact we don't take the steps we take now, and those animals do become extinct, if we can't save the rhinoceros and we can't save the elephant, as visible as those animals are to the entire world, what is it that we are going to be able to save?

Mr. SMITH of New Hampshire. Don't misunderstand me. I was not being critical. I am very supportive of what you are doing. Let me just draw a parallel. As you deal with the threatened species in Africa, to draw a parallel to North America, which is something I am a little more familiar with than the African species, but for example there's been a great deal of criticism about the wildlife management in our own national parks here in North America because of the fact that they have been managed apparently—at least the critics say that they've been managed for man rather than for the species.

For example, we have eliminated the wolf out of Yellowstone National Park and caused some problems there with an oversupply of elk because we were afraid that the wolf might threaten the human visitor to Yellowstone Park. The same problem now is occurring with the grizzly bear in Yellowstone because there have been a few isolated incidents of grizzlies attacking humans. Now they are being even threatened in Yellowstone with only some 200 grizzlies I understand left there and very few grizzly sows at that, so that, now is becoming a problem there, and some demands are being made that in some cases they kill grizzlies and remove them from the park, sending them to Alaska—whatever.

As we draw that parallel between North America and Africa, I just want to see if I can get some insight from you, are we making the same mistake—and I am asking, I am not prejudging. Are we making the same mistake? Are we preserving in these preserves species that are so-called "trophy species" that people can hunt to the destruction of others or are we truly trying to preserve species and habitat for the sake of those species?

Then I'd like one follow-up question after I get a response to that.

Dr. SCHNEIDER. I think that that question raises an issue that I think is going to be brought out very well by some of the other people who are testifying, for example Dr. Western. He and I last night talked about something fairly analogous to that issue.

I think one of the things—what this may raise that is that Americans are generally not very open to learning from the experiences that go on overseas. We generally have a feeling that we teach other people how to do things rather than learn from them, but in fact what is going on in the approaches being taken in Africa is much more "let's focus on preserving the habitat. Let's focus on preserving all of the animals." The issue is how can we do that in a way that makes economic sense for the local citizens and for the country. It is meshing those two things together.

The United States has taken a particular approach with its parks that produces a tremendous support for parks in the American citizenry, because they really take great advantage of them.

The problem is that has led to perhaps, as you characterized it, overmanagement.

The conservation groups, many that are represented here, and the experts are very much pushing for "we have got to preserve." I think Dr. Nduku, who is the head of the parks in Zimbabwe can testify directly on their efforts. It is very much focused on maintaining that—I won't say a pristine environment, but really maintaining the fundamental character of the environment rather than trying to "let's build the roads and let's really manage it for the people."

The question is that it's a much greater problem in Africa in particular, but also in Asia, where you have a developing nation where the economics become much more important and where you have the rhinos where, the horn is literally one or two years' annual wages for a poacher. It becomes very difficult managing those economics. I think today what you are going to hear from some of the testimony is a fairly remarkable effort at meshing public, private, local economic interests and conservation.

I think they may be on—from my perspective as an American looking in a somewhat detached way—they may be on to something that we in our own park management could learn something about, because they are not trying to just maintain the trophies. The birds, the small mammals, are viewed to be equally important. They aren't subject to the poaching but it is really how can we maintain this environment in its natural setting. That is really the challenge the rhino raises, because it may be very difficult, given the war that has to be fought to save the animal.

Mr. SMITH of New Hampshire. But with the demands, economic demands of course, that we are facing, especially in Africa—it is true here, too, but certainly in Africa—that the park lines that we draw, and I certainly support those park lines—draw more of them, but as we draw those park lines, they are manmade boundaries. Sometimes those manmade boundaries just intersect the—what's the word I want—not the domain but the habitat or the territorial movement of the animal or the species that we are talking about.

I think sometimes—let me ask this. In Africa, are these parks set up in perpetuity as they are in America? I mean are we assured that they are preserved?

Dr. SCHNEIDER. Yes.

Mr. SMITH of New Hampshire. A few years ago Idi Amin, rest his soul wherever it is—don't rest it, was involved in some slaughter in a park. I don't recall the details but apparently a number of species were killed including rhinos, I believe. He just took his army and just literally wiped out an entire park in Uganda if I remember——

Dr. SCHNEIDER. That's correct.

Mr. SMITH of New Hampshire. Well, I've gone all the way around a number of issues and I just have one more question.

In determining whether or not species or animals survive for the sake of man or whether they survive because they ought to survive as part of the balance of nature, which I believe they should, I think the best example, and it's related but it is not your domain I know, but it is the chimpanzee.

According to Jane Goodall, a million chimps at the turn of the century—today we are looking at 17,000 in Africa alive in the wild and these animals now are being—there is a great movement throughout the country now and frankly here in Congress to move these animals on a helter-skelter head-on collision course into AIDS research. The jury is still out on whether or not they can really be helpful in AIDS research. According to Jane Goodall, you have to kill six or seven chimpanzees to get one, which is what it amounts to because of the horrible way that they go about doing it.

You know, this isn't habitat destruction. The chimp's habitat is being destroyed, of course, but this is more than habitat destruction. This is outright destruction supposedly for the benefit of man. How do we deal with that?

This is not a facetious hearing, believe me, but I suppose maybe we should spread the rumor that with the rhino horn that it is not an aphrodisiac but it has the opposite effect. That would change some of the feelings, but in the case of this, this is something that we are all going to have to wrestle with. AIDS could very well be a threat to the human race. What do we do? Do we proceed with the chimp or not proceed with the chimp? This is really a moral, ethical question that we face in addition to habitat, hunting and all the other things related.

I would just appreciate a quick response to that. I think that it is interesting because what we are facing with the rhino is it's not habitat destruction. It is pure wanton human greed, so on the spectrum——

Dr. SCHNEIDER. The result is the same, though, if you destroy the species.

Mr. SMITH of New Hampshire. No, there's no question about that. But you have a case where this is going on and we are not able to stop that, as you start to move into sort of the legitimate zones, it becomes a much tougher issue and that is why if we can't resolve a problem in the extremis, we are never going to be able to resolve the problems when we have the conflict over sort of possibly a legitimate use.

Dr. SCHNEIDER. I recognize, I totally agree. I think it is a very, very difficult issue. I think though, that if we start to look at our roles, to quote the Chairman, I mean we are "caretakers," and if we destroy the habitat, if we destroy a species on our watch, it is really unforgivable and it really starts to raise very difficult balancing questions that we have got to deal with, and just putting it into the public forum on this Committee is a major step forward to starting to deal with those things, so that people can make that moral judgment in the balancing thing.

The problem that we see is that until fairly recently these issues were not in the public forum. They were not publicly debated. It was the result of a few governments that would take an interest and private conservation organizations and by putting it out and debating it. It is much more likely that we are going to be able to come up with a result that really balances the different needs and recognizes the fact that we are here and we have got short term care of the Earth and it is a very heavy burden.

I would like to give you a simple answer. I don't know.

Ms. SCHNEIDER. Would the gentleman yield?

Mr. SMITH of New Hampshire. Yes. I'm sure my time is up by now anyway.

Ms. SCHNEIDER. Certainly we have these moral questions to address, as you are suggesting, and granted I think that the outlook is a little bit more optimistic than perhaps one might be inclined to perceive because there seems to be a new shift taking place. At least from my perspective, that there is a new paradigm that is developing that does take into consideration economics and I think it is the same kind of shift that we have seen in the environmental movement before whereas, we saw that various chemicals were destroying our rivers and streams. So the Government stepped in and the Government said "Thou shalt no longer dump those chemicals in the stream," so it was a matter of no longer was one permitted to destroy.

Now we are in a completely new way of thinking, where there is an emphasis on economics whereby those chemicals are being recycled or reused for the benefit of society and for the benefit of the environment.

The same thing is happening in the conservation movement, but it is not quite as widely known. Right now we are seeing—probably the most biologically diverse country in the world is Madagascar, and we have seen where that country has become educated to the fact that yes, they have population pressures and the habitats are disappearing for plants and animals, but the fact is that now they have determined that there is economic value to maintaining certain areas for tourism. The only place you find lemurs is in Madagascar and so now this has become their big attraction.

We are seeing the same type of thing happening in South America with the integration of institutions with the non-profit organizations whereby Dr. Mittermeier from the World Wildlife Fund has designed a whole new paradigm to work with the World Bank in development projects, and so now instead of tearing down tropical rain forests they are able to find economic value there and choose selective wood products that will add to the economy. We can be selective in how we deal with total ecosystems and whole habitats and it can be to the economic betterment of the native societies and to the environmental betterment of all.

Mr. SCHEUER. Picking up, if I could make one comment on that, I think in today's panels there are a number of people who can testify specifically about that sort of integration between conservation, education and economic benefit from conservation, and I think the efforts in both Zimbabwe and Kenya really are excellent examples of how two countries are really taking that, and it is making a big difference in terms of their conservation efforts.

Are there any additional forms of aid that we ought to be giving Zimbabwe, Kenya, Nepal—in additional to what we're doing now?

Dr. SCHNEIDER. Money is always very significant. Given our own budgetary constraints it is very difficult to ask for serious increases in money.

Mr. SCHEUER. Except that the monies involved are such a pitiful level of magnitude that you could double them and treble them.

We are giving $100,000 for example to Kenya. If we gave half a million dollars to Kenya, it wouldn't do a hell of a lot of harm to our budget deficit of $160 billion a year.

Is there aid that we can give them, additional funding, equipment of various kinds at the very low level of cost that would make a big difference there?

Dr. SCHNEIDER. I think that there are two things, really very small amounts of monies, under $1 million a year, particularly if you can tie it into the matching that puts a burden on private organizations to raise money, that would have a tremendous effect. Literally a million dollars a year would increase the total amount spent on rhino conservation by an enormous percentage.

The second thing is hard goods. The United States Government, through Defense and other organizations, has a tremendous amount of hard goods such as airplanes and helicopters. One of the comments that's come up is the Drug Enforcement Agency confiscates airplanes and helicopters and what does it do with those? It usually sells those off and turns the profit back into drug enforcement.

Literally taking two or three of the Cessnas and two or three of the helicopters that come in, and diverting those instead of selling those off, giving those through Fish & Wildlife into or channeling them through organizations such as the World Wildlife Fund can make an enormous difference. In that way those hard goods, where they are not contributing to the budget deficit, could make an enormous difference. They are big capital items that are much more difficult for private organizations to raise as a major contribution. In terms of dollars it is literally hundreds of thousands, no more than that, that can make an enormous difference and can substantially increase the amount that's given and really provide most of the needs.

I mean I think it would be—other people testifying today might disagree—my own feeling is that if the United States Government came in with millions of dollars it would overwhelm the conservation efforts. It is really providing the seed money that can then be used to bring in other private funds and focus people really on what the priorities are that can be most valuable.

So, $200,000 to $400,000 in a year is really what is needed.

Mr. SCHEUER. Congressman Henry.

Mr. HENRY. Well, thank you, Mr. Chairman. I am not going to ask questions because I am afraid we are going to run out of time before we start getting the string of votes other than to say it is remarkable how this issue has developed and the coalition of groups working on this, and quite frankly what has happened, small as those steps may be with the diversity of agencies that have been working on this, I simply commend you and also urge you again to lean on us when these things happen.

I am infuriated when I read about this UAE business over $1,300. I mean I think some of us would have a lot of fun spreading that word around on your behalf, so lean on us when the time comes, but I am afraid we are going to have votes pretty soon. Thank you.

Mr. SCHEUER. Congressman Joel Hefley.

Mr. HEFLEY. No questions.

Mr. SCHEUER. All right. I am going to ask just one question because we have way run over our time for this panel. We have set up some sanctuaries in Kenya and Tanzania and so forth where

the law enforcement, the problem of physically protecting these great animals, is almost hopeless. It looks doomed and when I'm told that the black rhinos are decreasing at the rate of 50% every two to three years, one is overcome by a sense of doom.

Would it be possible or feasible to select some countries where the climate is similar to Eastern Africa, countries where their writ, their law enforcement writ reaches to their borders and is serious, countries that are in control of their own territory, and establish new sanctuaries in places where perhaps sometimes these animals existed in the past but not now, some places where they exist now but not in large numbers and perhaps some places where they haven't existed at all.

For example, in Sri Lanka, could you look upon that island as a place where you could establish some large sanctuaries? Elephants are indigenous to Sri Lanka. Could rhinos survive there? India? Pakistan? South Africa? Israel? Argentina and Brazil? North Mexico? The southern part of the United States?

Would any of these place where most of them have more effective law enforcement I would think than the East African countries, would they be appropriate for establishing new or substantially enlarged—new sanctuaries or substantially enlarging the number of elephants and rhinos and other threatened species that are existing there now?

Dr. SCHNEIDER. Two answers to that.

First of all, I think one of the things that you will find is that for example in Kenya, where they have set up sanctuaries there, in the last couple years there literally have been dramatic improvements in the reduction in poaching, so where they have been there, much of the killing of rhinos that currently exists is in the areas that are basically relatively unprotected, not in sanctuary situations, and some of the other people testifying can talk in greater detail about that.

On the second point, in terms of could we be setting up sanctuaries in other countries, I really believe that it would be better if I defer to in particular to Dr. Foose and I think Dr. Western, who have looked at this and have very definite opinions about this matter and I think it would be a very good idea to ask both of them what their thoughts are on it. Not really trying to pass the ball, but I think they have really thought specifically about that issue.

Mr. SCHEUER. Very good, very good. Well, we thank the panel very much. You were predictably stimulating and encouraging and inspiring. We are very grateful to you.

We'll now go on to Panel 2, Dr. David Western, Chairman of the IUCN African Elephant and Rhino Specialist Group and Acting Director of the Wildlife Conservation International and Dr. Esmond Bradley Martin.

We are running very late and we have five panels to complete, so I am going to put everybody on the five-minute rule, the witnesses as well as members of Congress and we have an egg-timer here and we are going to be tough because we do want to hear all the witnesses and we do expect some roll call votes this afternoon that will make things even more difficult.

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Dr. Foose will be in a later panel. Dr. Western, if you somewhere in your testimony would just touch lightly this question of alternative sanctuaries that I just asked, that will save a little time.

All right. We are on the five-minute rule. Just chat with us briefly. Your testimony will be printed in full at this point in the record. We are delighted to have you.

Dr. Western, please chat with us.

STATEMENT OF DR. DAVID WESTERN, CHAIRMAN, IUCN AFRICAN ELEPHANT AND RHINO SPECIALIST GROUP AND ACTING DIRECTOR, WILDLIFE CONSERVATION INTERNATIONAL; AND DR. ESMOND BRADLEY MARTIN

Dr. WESTERN. Thank you, Mr. Chairman.

I would like to stress at the very beginning that it is very important to realize that Africa is exceptional in the biological diversity world. North America, South America, Asia, Europe have lost their mega fauna 10,000–20,000 years ago. In most cases 80 to 90 percent of the large mammals disappeared. The sole exception is Africa. It is the only continent in which a very tiny fraction, 2%, of the large mammals were lost.

Therefore when we talk about the conservation of biological diversity generally, I would like to urge particularly that the exceptional status of Africa in terms of large mammals, be considered. After all, large mammals are disappearing very fast. These are the last we have anywhere in the sense that they existed during the Pleistocene.

There is another reason why we should concentrate particularly on the rhino. Extinction is a stranger to Africa. We have had virtually no extinctions. The blue buck and the quagga were the two exceptions last century in South Africa.

Black Africa has no recent extinctions and therefore it comes as something of a shock to realize that some of the biggest and most dramatic species are being lost.

We don't have the techniques, the technology or the awareness that extinction can be a problem and ultimately a real loss. We require help with that.

If one looks at the recent status of the African rhino, we have the last fix in 1987, when we reckoned there were between 3,700 and 4,000 rhinos, black rhinos, still surviving. The indications since then are twofold. Firstly, the rhino continues to decline at roughly the same rate that it did up until 1987, that is to say a halving rate every three to five years.

Secondly, those populations are split up into minute sub-populations numbering over 100. If many of them were left unattended, they would simply go extinct from inbreeding and chance extinction.

By contrast, the Southern White Rhino has increased from around 100 in the 1920's to over 5,000 today and this is the salient lesson which you want to dwell on.

So let's quickly review what's happened in terms of action plans since 1981. The first stress of the IUCN Elephant/Rhino Group was threefold: to conserve genetically distinctive forms of both rhino species, black and white; to concentrate on protecting large natural

populations; and finally to investigate the trade with a view to closing the trade in rhino horn.

The response to the first plan in 1981 was very insignificant. The Black Rhino in particular had a poor public image, and I stress the point. If the Black Rhino has a poor public image, how much worse is an insect going to have in terms of poor public image? If we can't conserve something as big and dramatic as the rhino, our chances in the Third World countries of conserving biological diversity in general are going to be very limited. Nevertheless we have the statistics. We knew what was happening and the rhino continued to decline.

Now let's move on to 1985, the second rhino plan. There was a re-thinking to some extent. The stress was increasingly on the trade. Block the trade and you stop the demise of the rhino. There was a shift in thinking that these large populations of rhinos, which we considered natural, were simply not being protected and were unprotectable and therefore increasing emphasis would have to be placed on small, discrete, protectable populations, but that didn't really come out very strongly from the second plan.

The response to the second plan was very much better. Public information was much more widespread on the plight of the rhino, particularly in Europe and the United States. More money was accumulated and invested in rhino conservation and in particular a very large effort, as we'll hear from Dr. Bradley Martin, was invested in the rhino trade investigations. That led to a near closure of the entire trade in rhino horn internationally, and yet despite that trade closure, the rhinos in the field continue to decline at roughly the same rate. In other words, bans in and of themselves were not enough.

On final point on that plan which was important was the identification of one sub-species called the Northern White Rhino. The numbers were unknown. Only one population was reckoned to be viable, the Northern White Rhino in Garamba, Northern Zaire. As a result of that attention drawn to the sub-species, it is now receiving very good protection from the collaborative efforts of the Zaire government while they are funded by Frankfort Zoological and IUCN, so this is an indication where endpoint conservation can be extremely important. The response was better, but still not good.

Let's go on to the final three-year plan, 1987. The results of the plans basically focused on—I'm sorry, Mr. Chairman. I was originally told it was 10 minutes and I am trying to compress it. The results now focused on small, discrete populations because the evidence indicates where there's a big natural population, as much as we'd like to protect them, they are basically very difficult to protect with the resources Africa has today.

Now going down to the small protectable populations, I would make two concluding remarks. Firstly, the only chance we have to protect a large natural population is in Zimbabwe, and we believe maximum effort should be placed on Zimbabwe's 1,700 rhinos. All other rhino populations in Africa will really rest on the efforts of three countries, South Africa, Namibia and Kenya. In fact those four countries between them hold 85% of all the remaining rhinos. We could protect half the remaining rhinos if we concentrated on those four countries, so strategically what we are arguing for is

more concentration on those countries which are responsive. Frankly, it is a wasted effort to put money and effort into those countries are not willing to draw up their own national plans. Africa has shown it is possible and we believe secondly that the small rhino sanctuaries are becoming very effective.

In conclusion here, one of the big improvements in the last three years has been the concerted collaborative effort between individual private landowners and governments, where governments, particularly in Kenya, are giving incentive to landowners by providing rhinos on breeding loan. The landowners then are able to raise the rhino with government support and eventually to help restock national populations in government sanctuaries. I should add that it is not simply the private efforts alone which are being effective in this case. Public lands are being protected in a similar way, that is, a lot of effort on small populations is also being equally effective as Nairobi National Park, Nakuru and other areas are showing.

I believe this is a very important direction to go, that the international collaborative efforts are becoming effective for the first time ever, that the collaborative efforts between national governments and the private sector are going to become increasingly important. Finally, one must balance off the interests of the public domain and the private landowner and I have listed in my testimony a variety of pre-conditions I feel are necessary for the public and the private sector to match in terms of over-all national programs.

Thank you.

[The prepared statement of Dr. Western follows:]

CONGRESSIONAL HEARINGS ON THE CONSERVATION OF RHINOS

A REPORT TO THE SUBCOMMITTEE ON NATURAL RESOURCES, AGRICULTURAL RESEARCH AND ENVIRONMENT

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THE STATUS OF AFRICAN RHINOS

The last status report of African rhinos was made by the IUCN's African Elephant and Rhino Specialist Group in May 1987. The picture has changed little since, so I will simply highlight the few points relevant to a discussion of conservation activities.

Black rhino numbers stood at around 3,700 to 4,000 in 1987. The population was continuing its rapid decline, halving every four to five years. What little evidence we have shows an unabated decline since then.

Of equal significance, the black rhino population is fragmented into 100 or more populations. A large number of these small isolated populations will eventually go extinct from chance events and inbreeding unless rescued, even in the absence of poaching. Black rhinos are declining in virtually every country except South Africa, where most are well protected in small sanctuaries, and Namibia. The combined populations of both countries number 1,100. The largest relatively natural populations totalling 1,700 survive in the Zambezi Valley, Zimbabwe, where heavy poaching is barely being held in check by well-armed security forces. Kenya's population, at around 500, is perhaps holding its own, largely because most rhinos are now located in national and private sanctuaries. Over 85% of all black rhinos are found in these four countries.

The picture in the remaining 14 countries falling within the rhino's former range is discouraging. Of 500 or so animals, only those in Tanzania and possibly Zambia can be saved if action is taken immediately.

The white rhino, in contrast, continues to increase steadily from a population low of some 100 in the 1920s. Today the population stands at around 5,000 with every indication that numbers will continue climbing for the next few years.

CONSERVATION ACTION PLANS

The first international rhino conservation strategy was prepared by IUCN's Rhino Specialist Group in 1981. The strategy was based on three criteria--conserve the genetically distinctive forms of both rhino species, concentrate on protecting large natural populations, and investigate the trade with a view to closing the rhino horn markets.

The AERSG conservation plan gave top priority to the highly endangered white rhino in Sudan and Zaire, then thought to be distinct from the southern form. The plan also laid heavy emphasis on protecting large black rhino populations in the Luangwa Valley of Zambia, Selous Game Reserve in Tanzania and the desert rhinos in Namibia.

International response to the AERSG plan was slow. In part this can be seen in retrospect as a reflection of the rhino's poor public image. Funds were difficult to raise. Wildlife organizations did,

nevertheless, raise funds. IUCN, Frankfurt Zoological Society and World Wildlife Fund set up a collaborative project to conserve the northern white rhino in Garamba, Zaire. By the time the project got underway in 1985, the population was down to 17. It has since increased to 21, according to recent reports.

Attempts to save the big natural populations of black rhino have singularly failed, except in Zimbabwe. The Luangwa Valley rhinos declined from around 3000 in the late 1970s to perhaps 50 today, despite the well-funded efforts of Zambia's Save the Rhino Trust. Virtually no attempt was made by African governments, conservation organizations or donor agencies to protect other large populations.

Trade studies were, in contrast, given considerable attention. Rhino horn markets and uses were fairly well understood by 1983.

The second AERSG plan was drawn up in 1985. A detailed review of the trade and information on the status of rhinos across Africa led to a new continental strategy which, recognizing the futility of protecting large remote rhino populations like Luangwa Valley, stressed the need to concentrate on safe areas. Vulnerable and dead-end populations would, under this new plan, be moved where possible to the safe areas. The need for national rhino plans was heavily stressed. Trade studies and efforts to close the remaining Asian markets for rhino horn continued to be given high priority.

The response to the second AERSG plan was a big improvement over the response to the first, for two reasons. First, the plight of the rhino was more widely publicized. Second, African governments began to respond to the crisis for the first time.

Kenya, the first country to draw up a national rhino plan, stimulated other African nations to formulate conservation strategies and raised substantial funds internationally. A focal point of Kenya's plan, like the AERSG strategy, was the concept of rhino sanctuaries. Nairobi National Park and private ranches (Solio and Laikipia) had already shown how successful rhino sanctuaries could be. Other areas, including Nakuru and Tsavo, and in the private sector, Lewa Downs, were established as sancturies.

South Africa, which had set the pattern for sanctuaries far earlier, followed Kenya's lead in drawing up national rhino plans. Zimbabwe also began to formulate a pragamatic defence policy for its remaining natural populations in the Zambezi Valley as poaching activity from Zambia picked up.

Three further aspects of the AERSG plan were picked up in Africa and internationally. 1) Renewed efforts to ban all rhino horn trade was highly successful, but the illegal trade continued to thrive. 2) Studies to determine the genetic and morphological variation in black and white rhinos were initiated. 3) Zoolgical societies around the world began to contribute to rhino conservation through captive breeding programs and techniques for the management of small populations.

The third AERSG rhino plan was drawn up in 1987, following a comprehensive look at progress over the proceeding two years. Some significant changes were adopted. Less emphasis was placed on separate rhino populations after preliminary genetic and morphometric findings indicated little regional variation. Nontheless, four management populations were designated--southern, eastern and western populations and the Namibian desert rhinos. Recognizing that trade embargoes were not slowing the loss of rhinos, greater stress was put on saving safe populations and relocating others. Tanzania and Zambia were encouraged to set up rhino sanctuaries.

It is too soon to evaluate the response to AERSG's 1987 plan, which has, in any event still to be published. The momentum in rhino conservation has nontheless continued to grow. Media publicity has drawn world attention to the plight of the black rhino. It has, as a result, become something of a flagship species in Africa. Kenya continues to promote sanctuaries successfully; the rhino population has begun to stabilize. Zimbabwe's protectionist policies have paid off so far, with sizable international funding. Zimbabwe has also hedged its bets by moving some rhinos to private sanctuaries. Tanzania has recently indicated its interest in establishing rhino sanctuaries and Zambia has begun to consider similar moves. On the trade side, efforts are being tightly focussed on the North Yemen and specific Far East markets. It is still to early to say how successful these measures will be.

In summary, IUCN/AERSG surveys and plans have been helpful in publicizing the rhino crisis and in getting action. AERSG has also helped judge what does and doesn't work in rhino conservation. Government support is essential. Rhinos in any numbers are only likely to survive in four countries, Zimbabwe, South Africa, Namibia and Kenya, unless other governments take immediate action. International support for Africa's rhinos has also been slow in coming.

The interest shown by the United States Congress is welcomed, but until it take some tangible form, it is unlikey to help save Arica's rhinos.

INTERNATIONAL AND NATIONAL CONSERVATION EFFORTS

A review of black rhino conservation over the last two decades illustrates the increasing importance of collaborative programs in conservation. I will make a few observations on national and international roles, before discussing the public and private sector.

International support for rhino conservation in Africa is indispensable. Africa has too little money and too many demands on it to fund a continental rhino strategy. But there is more to an international commitment than money, as important as that may be. The

markets for rhino horn are in Asia, not Africa. Closing the trade in rhino horn calls for international trade conventions and a global commitment to enforcing them. Africa's rhinos will be endangered as long as the external markets persist. Then again, it takes international cooperation to assess the overall status of rhinos and draw up species conservation strategies across Africa. Finally, because extinction has been a stanger to Africa, few governments have the technical information and management skills to conserve rhinos, even when money is available. Conservation organizations and training institutions in the developed world must continue to help fill the gaps.

It is, by the same measure, futile for international programs to operate without a strong national commitment. International conservation bodies have played an important part in alerting world attention to the rhino predicament and providing stop-gap funding. However, many, frustrated and impatient with government indifference, have been been inclined to go it alone. The result has invariably been an expensive waste of time, as attempts in Luangwa Valley, Zambia have shown. It is telling that the outlook for rhinos is brightest in those countries that have taken their own initiative on conservation.

It would, however, take the entire budget of the international conservation bodies to save the black rhino in all African countries. Setting a more modest goal, at least half the present rhino population could be saved in Zimbabwe and Kenya alone, two countries that have taken strong measures to conserve rhinos. Tanzania and Zambia may soon take similar measures.

Finally, even with international NGO support and a firm national commitment, rhinos cannot be saved in any number without the added support of international donor aid from the developed world. The sheer magnitude of saving a significant portion of Africa's biological diversity, be it rhinos or countless other species of plants and animals, is simply too great to be tackled in the piecemeal manner of a decade ago.

PUBLIC AND PRIVATE SECTOR CONSERVATION

The public sector is emerging as a new and forceful factor in rhino conservation, as it is in wildlife conservation generally in Africa. The establishment of a successful private ranching industry in Kenya, Zimbabwe, Zambia, South Africa, Botswana and other countries has been a mixed blessing for wildlife. Wildlife has, on the one hand, suffered from fencing, shooting and competition from livestock. On the other, ranchers have found wildlife to be profitable and pleasurable. Wildlife has, as a result, shown a resurgence in many ranching areas of Africa after initial declines.

The question of wildlife ownership and the role of government in managing state animals on private lands is an untested but strongly contested area of concern. The need for collaboration between the public and private sector has been demonstrated admirably in the case of both the white and black rhino. Yet it is also clear that a great deal more needs to be done to engage both sectors for the common good

of conservation.

The origins of public and private sector collaboration can be traced back to conservation programs to save the southern white rhino in South Arica. Down to around 100 animals in the 1920s, the white rhino survived in only a few closely guarded sancturies. Once the population began to increase, animals were made available to ranchers. The strong recovery of the white rhino can be attributed to common interests of the government and private sector.

The private sector has helped to save Kenya's black rhino. Here, some 40% of the country's rhinos are located on private lands where they have increased sharply in recent years, in contrast to the decline on public lands. The private sector can, given government backing, help conserve a large number of Africa's rhinos.

The potential of the private sector, and some of the likely pitfalls, are illustrated by the Kenya experience. All rhinos, except those imported from other countries, are state property. All the black rhinos on Kenya ranches were contributed by government. The excess numbers from one ranch, Solio, are now being used to restock safe sanctuaries in national parks. The private landowner has benefited from animals given on breeding loan by the government. The government in turn has been rewarded with a handsome return. This would seem an ideal formula for adoption elsewhere in Africa. Zimbabwe has instituted a similar policy and Zambia may soon do so.

A number of pitfalls, however, need to be resolved. There is a widespread misconception that rhinos are safe only on private ranches. This is not supported by the record. Nairobi National Park, the first sanctuary in Kenya (though it was not called one), was restocked with rhinos in the 1960s. Numbers have increased steadily to around 40 over the years. The success of any sanctuary, public or private, depends on its size and protectability.

The most difficult issue concerns ownership and stewardship. The government needs to be assured that landowners fully protect donated rhinos and manage them appropriately. Change of mind and ownership are constant threats to rhinos on private lands. Few ranchers are conversant with the sort of problems (disease and inbreeding, for example) that rhinos in small populations are likely to confront. Protection involves costs, including fencing, antipoaching patrols and biological inventories. Not all ranchers realize what is involved, or are willing to keep up all the necessary conservation activities. The government also needs independent verification of rhino numbers to gauge when a population is in trouble, and when to relocate excess numbers.

The landowner's concerns must also be addressed. They include guarantees that rhinos will not be removed without mutual agreement, that corrupt wardens and rangers will not have access to their ranch, that rights of privacy are respected, that financial support can be sought internationally.

These few examples illustrate the opportunities and problems facing public and private sector initiatives in rhino conservation. So far the record has been excellent. Nontheless, the potential for conflict and misunderstanding is sufficiently great that any national plan for rhinos should include clear agreements on the role played by both sectors. Kenya's present national plan is attempting to do just that in the interests of increasing the national herd as fast as possible.

Mr. SCHEUER. Thank you very much, Dr. Western. Now we will hear from Dr. Esmond Bradley Martin, and let's say take seven or eight minutes, Dr. Martin and then we will have some questions for the two of you.

Dr. MARTIN. I am not going to read my statement. I am going to talk about two aspects.

Very briefly, what action has been taken since the last Congressional hearing approximately two years ago and then spend three or four or five minutes on what action I see needs to be done as far as closing down the trade is concerned, both in Asia and in Africa.

Mr. SCHEUER. And what particular role you and Dr. Western and others could perceive for this Committee to play.

Dr. MARTIN. Right. I am only a so-called expert on the trade. I'd rather not talk about the other aspects. Dr. Western knows a great deal more about the biological aspects and conservation than I do, so let me limit my remarks, please, just to what can be done about the trade.

We've already talked about Singapore and that's closed down and I don't need to say any more about that. Burundi was a problem until approximately November of last year. As you are well aware, huge quantities of ivory, 150–200 tons were going in there and most of this was of illegal sources and rhino horn as well. There was a coup d'etat in Burundi in September of last year and there was a tremendous amount of criticism at the CITES meeting in July in Ottawa and it is very worthwhile to note that Burundi has now closed down as of November 5th and there have been a couple of people down there checking it and as far as we know, not only have they said that they've closed it down, it really is closed down, so that is no longer a problem.

Now as far a North Yemen is concerned, just a couple months after I testified here approximately two years ago, I went up to North Yemen and as it was earlier said by Dr. Schneider, we had meetings with the Foreign Minister and the Minister of Finance and we came up with a six-point action plan to try to close down the trade. I returned again in March, 1987, and half of the points had been implemented. The amount of rhino horn that's been going into North Yemen compared with the early '80s has declined by over 75%. It may be as high as 85%, so the North Yemen situation is greatly improved.

One of the cards I was able to use was to say that there were certain people, Congressmen and Congresswomen, who were suggesting that perhaps some foreign aid could be cut down far from North Yemen if they didn't implement this. The Foreign Minister immediately understood this and the appropriate action was taken.

Now, what action needs to be done today?

China unfortunately remains still a major problem. China is perhaps the only major country in the world which makes medicines containing rhino horn and exports it in large quantities. According to the CITES regulations this was prohibited back in 1985. In December of last year, I visited many of the factories in China which produce these medicines and regrettably they continue to export them. Worse, the Chinese are still importing new quantities of rhino horn.

Now I think that this Committee could certainly do something about putting pressure onto China and please ask me questions later about that.

Another problem is Thailand, but not for African rhino horn. Thailand is the major entrepot and one of the major areas in Southeast Asia which is importing and using Sumatran rhino horn. The Sumatran animal numbers approximately 800 and it is on the decline. The Indian rhino, as you know, is on the increase and the Javan one is rather stable so we still have a major problem with the Sumatran rhino and a lot of the horn leaving the island of Sumatra and leaving Saba in Borneo is going to Thailand, where it is being consumed and also some animals are being killed in and around Thailand.

What is needed there is some kind of diplomatic and economic pressure for the department there, the Forestry Department, to do something. They are rather apathetic. They don't go around and check the medicine shops.

Now the United Arab Emirates, the single biggest problem in the world for the ivory trade and perhaps for the rhino horn trade. I sat in on the elephant meetings this morning and I thought a higher priority should be given to the United Arab Emirates. A year ago they announced they would be withdrawing from CITES and they did so early this year, 1988. What is happening there with the ivory is that a very clever Chinese trader has come into the country, brought in scores and scores of Chinese carvers and until November of last year was importing very large quantities of ivory from Burundi, almost all of it from illegal sources from Tanzania, Mozambique, Zaire and other places, carving it up, and because the controls on ivory are much smaller than—they are hardly existent at all compared with raw ivory moving out—with rhino horn it's been also leaving Burundi until the end of last year and they were probably still getting rhino horn until very recently.

Yesterday I had a meeting with the two members of the CITES secretariat and a former member of the CITES secretariat who also confirmed that rhino horn had recently been discovered in Dubai.

Now what are we doing about this? I was in Dubai in November of last year trying to put pressure onto the government, not necessarily to rejoin CITES but to close down the illegal ivory trade and close down the rhino horn trade. I was supported by both the British and the American ambassadors and the counsel-general in Dubai. I was promised something would be done.

I returned again in March of this year supported by the British consulate in Dubai and I saw the Minister of Commerce and Industry, who is also one of the rulers of Dubai and also talked to him in great detail about this problem, and he promised something would be done. Nothing has been done. I think this Committee can do something. I agree that there's an Irani-Iraqi War, but CITES and this whole problem seems to be one of the best kept secrets in the United Arab Emirates, and appropriate pressure could be put on, I think, to do something about this.

A very important point with the ivory trade is that as far as I know there are no citizens of the country involved. In other words, there is no U.A.E. citizen who has an economic interest in it. I believe the same is true with rhino horn and the rhino horn is just

going in there. It is acting as an entrepot and some of it is being moved illegally into North Yemen and some of it has been going to Eastern Asia, especially Malaysia.

Zambia is one of the major problems in Africa, if not the major problem. Doctor Nduku will be telling you about the war going on in the Zambezi and the several hundred rhinos that have been killed there since 1984. I will not give any details on that because he will be talking about it, but what is happening with the rhino horn from those several hundred animals that have been killed in the Zambezi is it's being moved northwards up into Lusaka and after that, until November of last year, was being moved up to Bujumbura, the capital of Burundi, and then moved out, mostly to the United Arab Emirates.

Since the Burundi authorities have closed this trade down, we have evidence that it is moving from Lusaka downwards, southwards and something must be done about this. There are major gangs, trading syndicates in Zambia that are driving this killing of the rhinos, and killing of people incidentally as well, and Zambia in my opinion is the single biggest problem in Africa.

Finally, the CITES agreement that we came up with in Ottawa last year was to encourage the closing down of the internal trade in rhino products in Asia, and the only country that we've been able to encourage to do that is Hong Kong. Hong Kong was criticized this morning but Hong Kong is the first one beginning on July 1st to close down the internal trade, and this was done through Parliament. There were questions asked Mrs. Thatcher. Mrs. Thatcher specifically answered the questions and said this trade would be shut down, so the British Prime Minister is extremely interested in this and this has been done. I'd put a little bit more emphasis on that.

We need to encourage the use of substitutes in Southeast Asia and up in North Yemen and this is being done and quite successfully. Less than one out of twenty dagger handles now uses rhino horn because they are using substitutes and in some Asian countries there is almost no evidence of rhino horn going into them, being smuggled in, because they are using substitutes and Japan is a good example of that.

Mr. SCHEUER. I'm told that one of the substitutes is buffalo horn.

Dr. MARTIN. Water buffalo horn, that's right, sir.

Mr. SCHEUER. Oh, it's water buffalo. It's not American buffalo?

Dr. MARTIN. No, sir.

Mr. SCHEUER. Water buffalo.

Dr. MARTIN. It is water buffalo horn from India and Philippines. It is a domestic animal. There are probably over a hundred million of them and so there's no problem with that.

Excuse me for talking so quickly but I wanted to get all of my points in in the seven minutes.

[The prepared statement of Dr. Martin follows:]

Esmond Bradley Martin

The Rhino Crisis

The world's rhinos, in Asia and Africa, are facing a crisis. Logging and agricultural pursuits are destroying their wild habitat in some cases; in others, the lack of management of parks and reserves set aside for them is a crucial factor for their decline. However, the main reason why the estimated population worldwide has fallen from 70,000 in 1970 to 10,500 today is the demand for rhino horn.

The trade in rhino horn must be stopped. It began soaring during the last decade when the Arabs of North Yemen entered the market. Following an eight-year civil war, a third of the male population became migrant laborers in Saudi Arabia and the Gulf States, bringing back home the equivalent of $3,000,000 a day by the late 1970's. Many spent their money on daggers with rhino horn handles, formerly the prerogative of the ruling Imam's family and a few elite. The daggers were mainly made in the souk of the capital city, Sanaa; and in order to obtain the horn for them, Yemeni traders encouraged the poaching of rhinos in Africa, with the result that the price increased tenfold. By 1979 African rhino horn was selling for $500 a kilo wholesale. I have estimated that from 1972 to 1978 a minimum of 21 tonnes of rhino horn was imported into North Yemen, and perhaps an average of 1,000 rhinos a year were being killed in Kenya alone to meet this demand.

During the 1970's also, many Southeast Asian countries were experiencing an economic "boom", and the Chinese living in them were able to compete with the Yemenis for the supply of rhino horn. They wanted it as a medicine, mainly to lower fever (never have they considered it as an aphrodisiac -- that is a western myth). Although they prefer Asian rhino horn, it has always been more expensive than that from the two African species. In 1979 it

cost $8,500 per kilo wholesale. Not surprisingly, many consumers were willing to settle for the more plentiful and cheaper African horn, and they were not particularly dismayed by the upsurge in its price.

African rhino horn predominated Asian in the traditional Chinese medicine shops of Hong Kong, Singapore and Taipei when I made my first surveys in 1979. In the early 1980's, however, there were political disturbances in Assam, India, where the vast majority of the greater one-horned rhino species lives. In trying to quell the outbreaks of violence, the authorities had little time to combat poaching gangs that subsequently invaded the rhino sanctuaries. Much of the horn they took from the rhinos they killed ended up on the Singapore market, which at that time had no restrictions against such imports, and the traders paid for them with convertible currency. Along with Bangkok, Singapore became the major market for Sumatran rhino horn when the Indonesian economy fell back after the decrease in oil prices and the sharp devaluation of the rupiah which led poverty-stricken people on Sumatra to turn to poaching as a livelihood. Indonesian sailors often brought the horn to Singapore and Bangkok; they went from one traditional pharmacy to another, bargaining for the highest offers.

Because of the trade in rhino horn, Sumatran, Indian and African black rhino populations have all become endangered. The most recent statistics estimate that 800 Sumatran, 1,730 Indian and 3,800 black are all that remain today. The Javan rhino numbers perhaps 50 only; for many years it has been confined to a small area on the western tip of Java, but it is the one mainly reduced by habitat destruction. As for the other remaining species, the wide-lipped or African white, it is presently thriving in South Africa and Namibia, but less than 600 exist in the wild

elsewhere, and almost all those in Central Africa (the Central African Republic, Uganda, the Sudan and Zaire) have been killed in recent years.

Action Taken

Since the first Congressional Hearing on rhinos, on September 26th, 1986, certainly the most important action taken against the trade has been that which led Singapore to ban imports and exports of all rhino products on October 24th, 1986. Shortly afterwards, Singapore also signed CITES and began to implement the convention on February 9th, 1987.

I visited Singapore in January, 1988, and found no new Indian rhino horn in the shops I surveyed; a major wholesaler of wildlife products told me that it is now being smuggled into Hong Kong where traders are paying up to $15,000 a kilo for it. There does not appear to be African rhino horn imports now, either. However, it is questionable whether there actually has been a reduction of Sumatran rhino horn. Several managers of Singapore's medicine shops stated that during the past year they had continued obtaining supplies from Indonesian sailors.

Also, the major entrepot for African rhino horn, Burundi, has closed down. From the early 1980's until November 5th, 1987, the Burundi government allowed hundreds of kilos of rhino horn smuggled out of Zaire, Zambia, Zimbabwe, Mozambique, Tanzania and Kenya to be legally exported from Bujumbura to world markets. At the July, 1987, CITES conference in Ottawa, the party states, led by several African nations, severely criticized Burundi for allowing this. The press followed up with articles on Burundi's prominent role in the rhino horn trade. International wildlife organizations, including the World Wildlife Fund and the African Wildlife Foundation, put pressure on the Burundi government to stop serving as an entrepot.

In early September, 1987, there was a coup d'etat; the new government in November, 1987, reversed the policy. My informants who have been in Burundi report that imports and exports of rhino horn have been greatly reduced.

Although North Yemen officially agreed to ban rhino horn imports in 1982, approximately five tonnes of rhino horn were smuggled into the country between then and the end of 1986 (representing the deaths of at least 1,735 rhinos -- equal to almost half the entire black rhino population remaining now). Consequently, some Congressmen at the Hearing in 1986 put forth a suggestion that perhaps the U.S.A. foreign aid appropiations to North Yemen, amounting to $35,000,000 a year, should perhaps be cut back.

I mentioned this at the meetings I held with North Yemen government officials in Sanaa in December, 1986. I also stated that the international press corps wanted to expose North Yemen as the single most threatening country to the conservation of African rhinos. We then discussed ways of enforcing the ban on rhino horn imports, and a six-point strategy plan was drawn up. In March, 1987, I returned again to North Yemen and learned that efforts were being made to implement it. There is now a law to prohibit the export of shavings left over from the carving of rhino horn (which will reduce the profit margins of the traders); the main buyer of rhino horn in North Yemen has been warned officially that his business license may be withdrawn if he does not desist; most significantly, I was told that owners of dagger-making workshops would be required to sign affadavits agreeing not to use any new rhino horn. If caught doing so afterwards, their shops would be closed.

Imports of rhino horn into North Yemen are considerably down. The government has tightened customs controls, which has helped.

Also, the local wholesale price for rhino horn has soared from 4,300 to over 10,000 rials a kilo, substantially reducing the demand. While North Yemen took about 55% of the world's supply of rhino horn in the early 1980's, its mass production of daggers with rhino horn handles is now no longer the most serious rhino horn trade problem.

Problems to be Rectified Now

For many years China has been the main manufacturer of medicines containing rhino horn and has been exporting them all over the world, especially to Southeast Asian countries. Although China belongs to CITES, which banned international trade in these drugs in 1985, China has not stopped this practice.

In December, 1987, I found that rhino horn was still being imported into China, mainly bought by Guangzhou traders who distribute it locally and to other cities, including Chengdu in Szechuan. The amount of rhino horn presently being consumed by factories under the direction of the Beijing Pharmaceutical Corporation is declining due to the scarcity of new stocks, but some have obtained antique rhino horn cups and whole, old rhino horns from the "Forbidden City" to use in the production of their pills.

There is a general reluctancy on the part of the medicine factory managers to stop using rhino horn because they believe that would decrease the demand abroad for their medicines, and they do not want any decline in their convertible currency earnings. Moreover, most of the countries which consume the drugs have not yet implemented the CITES ban on their importation. Several managers furthermore justify their continued use of rhino horn by stating that any change in the formulas for their manufactured drugs have to be approved by the Ministry of Public Health, and "it may take years for this to happen".

Nevertheless, the Director of the Shanghai Medicine Company informed me on my first visit to China in late 1985 that the government had not allowed since 1984 rhino horn in any newly devised medicines. Also, I learned during my last visit that the China Pharmaceutical Research Institute in Beijing proposed in early 1986 that water buffalo be used instead of rhino horn.

The Chinese government should be reminded that exports of medicines containing rhino horn are illegal under CITES regulations, and it should also be encouraged to take immediate action to approve the use of substitutes such as water buffalo horn in manufactured drugs.

Other countries which need to be approached in order to take steps against the trade in rhino products include the United Arab Emirates, Thailand and Zambia. The U.A.E. is the first country to have pulled out of CITES. This occurred in early 1988, and because the U.A.E. has no law forbidding trade in rhino horn, it has become a major entrepot for supplies illegally exported from the Sudan and elsewhere in Africa; these are going to Malaysia, Thailand and North Yemen.

Thailand is a major consumer of rhino products. Its well-known demand for rhino horn has attracted foreign smugglers who provide Bangkok with African, Indian and Sumatran species of horn. Although trade in Sumatran rhino products has been banned by the government at least since 1972, proprietors of Chinese medicine shops in Bangkok openly flout this law, and a greater variety of Sumatran rhino products -- horn, hide, nails, bones, dung and dried blood -- is available there than in any other large city in Southeast Asia. Many are from animals recently killed in northern Thailand and contiguous areas of northeast Burma and western Laos. Some of the

more enterprising medicine shopowners have established their own contacts in remote areas with hunters who send word to them as soon as they kill a rhino. They then go collect the carcass and bring it back to their employees to cut up. Every part of any economic value is put up for sale. Pressure needs to be put on the Thai government to stop all sales of rhino products in the Chinese-owned pharmacies.

Illicit hunting by Zambians in the Luangwa valley has reduced the number of black rhinos in the country from several thousand in the mid-1970's to under 500 today. Zambian poachers are also responsible for killing over 300 rhinos in Zimbabwe since July, 1984. Even though the Zimbabwean authorities use helicopters to move their anti-poaching teams around the Zambezi valley, have modern communication equipment and automatic rifles, they have not been able to stop the Zambians because the poachers cross the river border with little or no interference from Zambian officials, and the Zambian traders handling the horn in Lusaka are apparently being allowed free rein to export it. Until recently, the horn went via Burundi to the U.A.E. Some is also reported to leave Zambia by diplomatic pouches. Pressure needs to be put on the Zambian government to allow an investigation of the poaching problems and to insist that appropriate disciplinary measures are taken against those involved in trading rhino horn.

Despite the fact that most countries have now outlawed imports and exports of rhino products, new horn, hide, nails and other commodities from rhinos are still being put on the major markets. Therefore, all the consuming countries should halt their internal trade in rhino products and encourage the use of substitutes for them because practically every rhino population is threatened by poachers.

Mr. SCHEUER. Very good. We're delighted you did. Congresswoman Claudine Schneider. We are on the five minute rule, all my colleagues.

Ms. SCHNEIDER. Yes, sir. You had mentioned earlier that we should ask you about some of the trade elements of particular note. Was there something more than you wanted to add on my time as opposed to your own time?

Dr. MARTIN. No, thank you.

Ms. SCHNEIDER. Then you've covered all of your points on that?

Dr. MARTIN. I've given the testimony, which of course goes into much more detail, but I thought that last time we discussed two or three countries where our efforts proved to be quite successful. Now I've discussed four countries, and I think that is enough for the moment.

Ms. SCHNEIDER. I think that your testimony has been so straightforward and you've given us our job description that I really don't have any questions and I thank you both for your expert testimony.

Mr. SCHEUER. Thank you. Paul Henry.

Mr. HENRY. Dr. Western, the four countries that had host populations, South Africa, Zimbabwe, Kenya, Zambia?

Dr. WESTERN. Kenya, Zimbabwe, South Africa and Namibia.

Mr. HENRY. Namibia?

Dr. WESTERN. Yes.

Mr. HENRY. Thank you.

Mr. SCHEUER. How about Tanzania?

Dr. WESTERN. Tanzania has very few rhinos left and their numbers are disappearing very fast. The Tanzanians have indicated as of the last two months that they would be prepared to think about special sanctuaries, but until such time as they do, I really think that it's almost a lost cause.

I would go back to one point that was raised earlier. Should we not be thinking about rhinos into other countries. I was down in Costa Rica last week and Dan Jansen said the megafauna has disappeared. We need big mammals to disburse the seed of these evergreen trees. How about rhinos?

It sounds like a good idea but there is one catch. The rhino is a flagship species for Africa now. It is very important that the African countries be given the opportunity to help preserve the species. Secondly, the species has a role to play in ecosystems. Once you pull up that species and perhaps the elephant you get all sort of secondary and tertiary changes in the ecosystem which are almost impossible to rectify later on, so it is very important to keep these animals in situ.

The final point that I'd like to make is the sanctuaries are beginning to work. Kenya's rhino population is stabilizing. We feel quite confident that we can keep in the order of 300 animals. Those animals in a sense today are living in populations more normal than they were in the last decade simply because within sanctuaries we have recreated the natural densities. They feed and breed themselves, which is very different from a zoo situation. Thank you.

Mr. SCHEUER. Congressman Paul Henry.

Mr. HENRY. I have no questions.

Mr. SCHEUER. Congressman Joel Hefley?

Mr. HEFLEY. No questions.

Mr. SCHEUER. Congresswoman Claudine Schneider.

Ms. SCHNEIDER. Last minute thought: Is there any scientific analysis of the components of rhino horns so that we could identify a commercial counterpart that could be used as a substitute for the Chinese medicinal purposes?

Dr. MARTIN. Rhino horn is made out of keratin and keratin is, as you know, protein molecules. We know what it is made out of. The problem is that we already have the substitutes: in Eastern Asia, water buffalo horn and syga antelope are fully acceptable and in North Yemen water buffalo horn is as well.

Ms. SCHNEIDER. For those medicinal——

Dr. MARTIN. Exactly, and if we try to produce something else, it won't be in their medicine books. Remember, there's a Chinese pharmacopoeia that goes back 2000 years. On page 38 you will have rhino horn. Page 39, you'll see water buffalo horn or an antelope horn and it is already acceptable and it is also much cheaper. I think that is the best way to go on that.

Ms. SCHNEIDER. Okay, thank you.

Mr. SCHEUER. Can you tell us why the United Arab Emirates withdrew from CITES and what lessons there are to learn from that action? After all, this is a country that is rolling in money. They don't know how to spend what they have got. It can't be financial pressure. What was their motivation?

Dr. MARTIN. The two Ministers that I talked to were not aware of CITES at all and they couldn't answer that question. It is an extremely difficult question to answer because the United Arab Emirates is interested in conservation within their own country and they have done quite a bit about it. What apparently may have happened is that certain parts of the government made these decisions while the rulers, the ones that I talked to, had no say-so in that, but I think it's an extremely bad precedent for a country to pull out and I am positive that with appropriate pressure and influence and people talking to the right people at the United Arab Emirates, this will change.

Mr. SCHEUER. It is the only country that's ever pulled out of CITES.

Dr. MARTIN. It's the only country that's ever pulled out of CITES. It is the only country that's given notice that they've pulled out of CITES. It takes 12 months and they have got a good record in the last few years within the country itself on conservation and as I said the illegal trade in ivory, which is huge, worth many, many millions of dollars and I noted it in great detail, there is not a single U.A.E. person involved, even pushing a broom or something like that. They are all foreigners, and with rhino horn, there are a couple of local people involved but they are making very small quantities of money out of it so this requires getting to the right people, like Sheik Said, who is the President, who unfortunately was out of the country when I was there.

Mr. SCHEUER. Well, why don't we talk with you privately if you will be around after the hearing and perhaps if Claudine Schneider can wait, we'll make some plans to make some of these interventions, okay?

Dr. MARTIN. Thank you very much.

Mr. SCHEUER. Does international censure appear to have any effect on countries condoning illicit trade or does it have to take real financial pressure, threats of cutting off this, that or the other thing, to convince them to end the rhino trade?

Dr. MARTIN. With the rhino horn trade, almost every country we've gone to has brought in laws. We have never failed in getting a country to do it. I mean in the mid-1970's almost no regulations of rhino horn trade—10 years later, every country has regulations. As I say, even Burundi has them. It hasn't joined CITES but it has banned trade and all the Asian countries have—of any significance except the United Arab Emirates, so we have never actually failed on that, and Dr. Western and I have in the past put pressure on certain countries and we have had a 100% success story on that, so I don't think we are going to fail in the U.A.E. The problem is that we haven't tried hard enough.

Mr. SCHEUER. All right. Maybe there's some trying that should be done on behalf of the United States Congress.

Dr. Western?

Dr. WESTERN. I would like to make one response.

I think the idea that trade bans are going to be effective has proved ineffective in the case of the rhino horn. It is not the legality of it. The international trade in rhino horn is basically illegal everywhere we have tried to impose bans.

The problem you are looking at is as Tom Schneider mentioned, you are dealing with four or five hundred horns a year coming out of Africa and if it is difficult for the United States to detect drugs coming into the U.S., imagine how much more difficult it is to detect 400 horns going anywhere from Morocco all the way through to the Far East.

That's a problem we've confronted, nevertheless I would fully endorse the point that we work on the idea that we reduce the demand through education means in the Far East countries and in North Yemen.

Secondly, while doing that, I think the most effective action the United States could take is to put very modest amounts of money into both Zimbabwe's natural populations and the sanctuaries. We are not talking about very large amounts of money and to a great extent they could come in under the allocations under biodiversity funds. Thank you.

Mr. SCHEUER. Dr. Western, you indicated that the numbers of South African White Rhinos increased from about 100 in the early '20s to about 5000 today. Now in the absence of sophisticated breeding techniques and the kind of genetic developments, such as genetic engineering that we've seen come in in the last couple of years, how was this possible? What combination of forces produced this?

Dr. WESTERN. Basically there are two combinations of forces. First, the rhinos were protected in very small, secure sanctuaries, which is the model that we are using for the Black Rhino. Secondly, as the populations began to recover——

Mr. SCHEUER. They were protected going back to the '20s?

Dr. WESTERN. That's correct. Wildlife Conservation International, the organization I represent, was in fact one of the organizations in the forefront of protection, but South Africa did an excellent job of

protecting rhinos in two sanctuaries. Once they began to stabilize and increase, they then redistribute those populations, both public lands and private, so again the model for the private sector involvement is there in South Africa. A very large proportion of the rhinos are on private lands.

I think the second point is also important. It didn't take sophisticated management. Just give them area and they bred and the indications for the Black Rhino are exactly the same; 17 to 20 rhinos were introduced into Solio ranch in Kenya in the early 1970's. They are now being moved out with a population in excess of 90. In other words going up at 10% a year, so we feel very confident that given a little bit of space and a little bit of peace, the rhino both Black and White, will increase very rapidly.

Mr. SCHEUER. Well, this has been a fascinating panel and we'll talk to you privately about some of the initiatives perhaps that a Congressman could make. The Science, Space, and Technology Committee is taking a trip to China in November. Maybe there are some things we can do then. I am going over to Paris next weekend, also again in August and if there are any kind of private consultations you think it would be worthwhile to produce, some kind of joint action, joint jawboning, joint sanctioning with the OECD countries, I would be happy to talk to them, happy to chat with them and I'd like to get your advice. We'll do that privately after the hearing.

Thank you very much, both of you. It was a wonderful panel.

We will now go on to panel three, Dr. Willie Nduku, Director of the Department of Parks and Wildlife Management, Zimbabwe.

Dr. Nduku of Zimbabwe is our next speaker. Zimbabwe is one of the countries that is making real progress and we commend you for that and we are very eager to hear your tale, so please take five or six minutes and chat with us.

STATEMENT OF DR. WILLIE NDUKU, DIRECTOR, DEPARTMENT OF NATIONAL PARKS AND WILDLIFE MANAGEMENT, ZIMBABWE

Dr. NDUKU. Thank you, Mr. Chairman and your Committee for allowing me to come and testify. Before I proceed, Mr. Chairman, I would like to thank a few people who have made my coming here possible: Rhino Rescue USA, who funded my trip here; and I must also thank SAVE for all the wonderful things they have done for us before.

I have heard in the testimony so far that we require a few things. Let me point out to you, Mr. Chairman, that I'll be requesting SAVE to submit a full shopping list of our requirements, Mr. Chairman, and the amounts required are quite substantial, of things that we can't find available in Zimbabwe. It is over $3.5 million and that is what we require.

I'm sure a lot of things have been said by previous people. I am going to concentrate only on what we are doing and what we hope to achieve, but first of all I would like to make a submission to you, Mr. Chairman, that the Zimbabwean government has made a ruling that there will continue to be a wild population of black rhino in Zimbabwe forever. That's an undertaking and because of

this policy it has given us powers to deal with certain issues relating to conservation and poaching.

It is premature at this point in time to give a prognosis for the remaining rhino population. An intensive monitoring and evaluation project is currently underway. There are reasons to believe that the situation in the Zambezi Valley and in Zimbabwe as a whole will not deteriorate to the same extent as in many other parts of Africa.

The commission of poaching network is not yet established in Zimbabwe. Apart from a few unsophisticated attempts by Zimbabweans to make money by killing rhinos, all except a few have all come from across our borders. However, if a Zimbabwean does become actively involved in poaching, the prognosis for the rhino in the Zambezi Valley and elsewhere in Zimbabwe will be bleak. It is therefore of the utmost importance to eliminate intent of poaching in Zimbabwe. This is our main target, to eliminate poaching within Zimbabwe itself.

We particularly need the highly mobile and efficient anti-poaching unit in the whole of the country to react immediately to any suspicions on rhino poaching in any corner of the country. Over the past five years illegal trade in rhino horn has been sustained by supplies derived from exposed rhino populations in Kenya, Tanzania, Zambia, Mozambique and Central African Republic. Those targets have now been eliminated and the flow of rhino horn via illegal channels must now be a small trickle compared to its previous extent.

If the rhino horn trade north of the Zambezi is declining, this gives added reason to believe that a concerted anti-poaching effort in Zimbabwe should not be regarded as a lost cause. By continuing to deny poachers easy access to the last remaining large rhino populations in Zimbabwe, Namibia and South Africa, we are persevering with international efforts to throttle the trend. We must inevitably create significant difficulties for the middle man.

I know, Mr. Chairman, most of the people here have been talking about the rhino population but they have been using examples on the extreme range of the spectrum. The problem is not the final destination where the rhino horn goes and the problem is not the producer country either. The problem is the middle man. This is the person that we must deal with, the person who comes into Zimbabwe to poach and the person who supplies all those countries that have been mentioned. This is the person that we must deal with and we must create within these producing countries a machinery to deal with that type of a person and this is the only way I can see the trade in rhino horn stopping.

It may be thought that regardless of any reductions in the international trade, poachers will still continue to enter Zimbabwe in the hopes of small profits. However, as the densities of rhinos is reduced through poaching and through rhino capture operations, the poachers will experience increasing difficulties in finding rhino. They will have to spend long hours since their catch per unit effort will decrease and this will create a better chance for us to apprehend some of them.

The poachers are essentially professional operators involved in commercial activity and it can be expected that at a point in time

their activities will become economically inviable. The returns will no longer justify the risks. Whether this point will be reached while the rhino still constitute a biological viable unit is a major question that is currently being investigated by our research branch.

Even if it is soon that the anti-poaching effort is presently unable to keep the poaching below the rate of natural population increase, this should not be seen as a wasted effort since sustained or increased anti-poaching effort will ensure that the point at which poaching becomes unprofitable must be reached sooner than later.

We have unique problems, Mr. Chairman. Apart from the size of the area to be protected in the Zambezi Valley and elsewhere, major problems are obviously the location of the rhino population, which is on our international border. While our neighbors remain unable to take concerted action to reduce cross-border poaching the Zimbabwean effort will continue to be increased. There is clearly a need for all possible diplomatic initiatives to be pursued to increase pressure on criminals using neighboring countries as springboards.

The Zimbabwe program—and let me point out that our program of conservation has not been adopted by the eight other countries who are members of SADCC and these are Tanzania, Malawi, Mozambique, Zimbabwe, Botswana and so forth. To complement the anti-poaching effort and program of rhino relocation, the establishment of breeding groups in secure areas is essential.

There seems to be some confusion over what is meant by a rhino breeding program. In the Zimbabwean context, intensive management of rhinos held in captivity along the lines of zoos is not the most cost-effective way of increasing our population. The expertise and the funds required to maintain those intensive programs are considerable. The development of severe cases, for instance, of filiriasis among rhinos held in pens in the Matobo and Shipangali areas in Zimbabwe is an indication of the problems that can be expected.

Overseas zoos obviously have no choice but to manage rhinos under fully captive conditions and to incur considerable cost and veterinarial problems in the process of producing each new calf. In Zimbabwe we can follow the more desirable option of managing rhinos under semi-captive conditions—that is, to let animals find their own food and their own partners within the confines of fences.

The breeding can be carefully monitored and judicious movements of animals can be undertaken to prevent inbreeding problems and skewed sex ratios and poor age distribution. The management problems thereby can be reduced and the rhinos will remain in healthier condition.

The animals that the Department of National Parks and Wildlife Management has placed on several ranches remain the property of the state and the Department must ensure that these same captive populations are managed so as to achieve maximum reproductive performance. The creation and management of rhino sanctuaries of this type on private and state land should be given priority over the efforts to move rhinos into fully captive breeding programs located elsewhere.

We have already started exchanging animals. We have sent in some animals to Swaziland for their captive breeding and these have come from Zimbabwe. We are also in the process of processing a few animals which are coming here to the States for zoo programs and we hope to be able to cooperate with our counterparts in the zoos, but in order for us to do all these things we have requirements.

There are a number of obvious forms of assistance which would be desirable for anti-poaching efforts in the Zambezi Valley and a number of other forms of assistance would be desirable to support other components of the Zimbabwe rhino conservation strategy, and will be specified in the report of the monitoring and evaluation exercise that is currently underway.

However, there are certain things that I can certainly mention here. We need to strengthen our research and management capabilities. We also need to strengthen the communication network to facilitate quick reaction. On this item here I must be thankful to Save, who have provided us with a network of radio communication in the Zambezi Valley, but we still need to cover the whole country, so we need radios and faster means of transport and communications. Here again I come to something which has been talked about before—helicopters and aircraft. The helicopters will not be used only for anti-poaching. They will also be used for translocation of animals because the areas these animals live in are very difficult to get to. We need the helicopters for anti-poaching operations and for moving the rhinos out of those areas for translocation elsewhere.

We also need trail bicycles because these are the equipment that is very mobile, very swift in those areas and I must thank SAVE-Australia, who have supplied us with a few of these.

We also need antenna communications, telex equipment, in order that we can quickly communicate with the other agencies like CITES. We also need detector devices like ordinary binoculars for daylight viewing, infrared binoculars for night surveillance of poachers who cross by night. We are beginning to encounter poachers coming across by night.

We also need to equip our guides in the bush, those who bear the brunt of the poachers, we need to make their lives comfortable. Here I am not asking for pay packages because that is the role of our central government. I am asking for things that will make their lives while in the bush to be comfortable like tents, water bottles, back sacks and so on.

We also need to educate our own people, so we need mobile resource education units made up of vehicles properly equipped with video equipment, cameras and so forth.

Mostly and above all we need your moral and financial support and diplomatic and political pressure to those people who are not complying with the conservation of this animal.

Our experience, Mr. Chairman, is that we have developed anti-poaching techniques that have become very good for the protection of other species, so we are not only protecting the black rhino. We are also protecting the elephants and a whole range of other species using the same technique and we are not only taking into captive breeding the rhino. We are also taking other animals like the

cheetah, crocodiles and so on into captive breeding in order to continue to have these animals forever.

Mr. Chairman, I'll end it here and say thank you for allowing me to say a few words.

[The prepared statement of Dr. Nduku follows:]

TESTIMONY OF DR. WILLIE NDUKU

THE RHINO CONSERVATION STRATEGY IN ZIMBABWE CODENAMED OPERATION STRONGHOLD

INTRODUCTION

Earliest records show that the Black Rhinoceros (Diceros bicornis) has existed in large numbers in the Zambezi Valley of Zimbabwe. Early explorers and hunters confirmed this in their diaries, i.e. Livingstone, Selous, Fairbridge, remarking that encounters with black rhino in the thickest (jesse) of the Zambezi Valley was a common, but dangerous experience. In 1943 Newby Tatham and the then Native Commissioner, Cecil Bisset recorded seeing many rhino in the Chewore area. And later again, Newby Tatham, in the company of Dr. John Wilds, a geologist, recorded seeing 20 individual rhino in two days walking in the same area.

During 1980-81 an aerial survey of all Parks and Wild Life Land within the Lower Zambezi Valley was carried out. Included in this survey was the Dande Communal land; an area in Mozambique south of Cabora Bassa Dam - west of the Musengezi River and the southern Luangwa Valley and the northern section of the Zambezi Valley within Zambia. During the survey carcasses which were observed indicated clearly that rhino poachers had already infiltrated the Zambian section of the Zambezi Valley. From mid to late 1970's reports received from Zambian Parks patrols confirmed a loss of two to three rhino per day in the Luangwa Valley, confirming that the rhino horn trade was hardly diminishing.

Undoubtedly this must have had a devastating effect on the rhino densities and poachers were soon to find difficulties in locating sufficient rhino to make the incursions into Luangwa profitable. The highest densities of, and the most easily accessible, rhino for these poachers were in the Zimbabwean Zambezi Valley and these represented the only rhino now available to them. Considering these facts and that the eastern Zambezi Valley (Kanyemba area) has been a traditional trade route for ivory, gold and horn dating back to the 14th century, and that the local communities have been involved in this trade for generations, it was predictable that the rhino and to a lesser degree, elephant, in this area were soon to face a serious poaching threat.

During the middle of 1983, the first signs of rhino poaching were revealed. Local inhabitants in the north-western Dande Communal Land began snaring rhino although some were shot with rifles. Over 30 rhino were known to have been poached during this period. A major anti-poaching effort was put into action and the situation was brought under control.

The Lower Zambezi Valley situated between Kariba on the west and Kanyemba in the east, some 15 000 km2 in extent, holds the last stronghold of a contiguous and viable black rhino population in Africa. Of this, approximately 12 000 km2 are protected within the Parks and Wild Life Estate, comprising one National Park, Mana Pools and four Safari Areas, Chewore,

Sapi, Urungwe and Charara. The operation to save these rhino in this area is codenamed Stronghold. For operational purposes there are six sub-sections, namely Charara, Rifa, Nyakasanga, Mana, Sapi and Chewore.

Following limited across-border incursions in the latter half of 1984 which increased in the early part of 1985, the struggle to save the rhino commenced in earnest. (See Appendix for poaching statistics)

Strategy

The strategy to conserve and protect the black rhino population has four dimensions and each one relates or depends either directly or indirectly to the other three. They are referred to in order of priority:

1. Local Reaction

Within the Zambezi Valley, the area concerned is State Land, classified as Parks and Wild Life Estate, and the authority for its administration being the Department of National Parks and Wild Life Management.

This particular dimension is broken down into three component parts:

(i) Anti-poaching and Law enforcement
(ii) Capture and Translocation
(iii) Research and Management

(i) Anti-poaching

A prerequisite for the commencement of the anti-poaching operation is to structure strategy, tactics and other efforts along military lines. Combatting poachers armed with automatic rifles is akin to an anti-guerilla-type warfare. In the first instance the area has to be secured by intensifying ground coverage and establishing strategic forward basecamps. The anti-poaching operation relies directly on manpower resource, suitably trained and equipped. This includes meeting an individual's personal needs, i.e. appropriate clothing, specialised patrol equipment, modern weaponry and good accommodation. Guaranteed salaries and field allowances must be ensured. National Parks personnel will continually face the possibility of death whilst protecting the black rhino and therefore only dedicated, well-disciplined men should be deployed within the operational area. This is the key to the success of Operation Stronghold. Other Government agencies must be called upon to give active and meaningful support; having a token force as a gesture of support is unacceptable and superfluous. The cost effectiveness and success rate of the anti-poaching operation needs to be monitored and analysed.

(ii) Translocation

(a) To minimise the loss of animals to poachers, the second important component is the translocation of rhino out of the Zambezi Valley to other relatively safe areas within the Parks and Wild Life Estate where these animals have previously existed, e.g. Hwange and Matobo National Parks.

(b) Translocation of rhinos to private game ranches where suitable habitat and security exists. Appropriate and reliable monitoring must be guaranteed thereby allowing the establishment of captive breeding herds. Once densities reach saturation, progeny will be returned to the rhinos' areas of evacuation when considered safe and secure.

(c) Translocation to other National Parks, suitable Zoos and Ranches outside of Africa, where the objective is to guarantee the security of the species and provide captive breeding units.

(d) International co-operation in captive breeding with the progeny being sent back to the wild.

(iii) Research

Research into the components of the rhino conservation strategy includes a number of ecological, biological and socio-economic aspects. Baseline information on the Zambezi Valley Rhino population requires appropriate census and monitoring techniques and a basic understanding of the population's dynamics and behaviour of the species in this environment.

The translocation of black rhino also requires careful documentation and monitoring. In particular, adjustments to new habitats, the establishment of home ranges and the maintenance of breeding limited numbers of animals needs investigation.

Rural and urban public attitudes towards rhino conservation should be appraised. In particular, the conservation value of rhino should be demonstrably higher than any other illegal use, i.e. poaching. This can be achieved through appropriate strategies such as live capture, translocation and sale to foreign countries.

Captive breeding methods need to increase viable genetic resource and prevention of in-breeding. This involves exchange of genetic resources.

2. National Reaction

First considerations have to be based on the commitment and support of Government for the protection of the black rhino. Here the personal commitment and support of the His excellency the President Comrade Robert Mugabe, is paramount. In 1986

the President confirmed this by endorsing his personal commitment by stating that armed poachers would be dealt with in the severest terms possible. The Minister of Natural Resources and Tourism, the Hon. Mrs V. Chitepo, has already given her personal support for our actions in the field. Government alone holds the responsibility of ensuring the Department of National Parks maintains its ability to function. Support from non-government organisations should only be used to augment funds already allocated.

Legislation which is the second part of this dimension, has had to be brought up to date with the current situation. A major milestone was passed when the mandatory sentence for killing a rhino and the possession of rhino horn was increased from 2 years to 5 years in addition to paying compensation of Z$15 000 for each rhino killed. Members of the Judiciary, Police and other Officials responsible for the legal processing of cases pertaining to rhino poaching, require to be fully briefed on the seriousness of the situation. Contravention of the specific section of the Act protecting the Black Rhino should not receive leniency and mitigating evidence not given credence. Evidence in aggravation should be led at every opportunity with the relevant statistics depicting the diminishing population of black rhino in Africa.

As this has become a national security problem, other law enforcing agencies that should support and assist the Department have had to be consulted and fully briefed on the situation. This includes ZRP, CID and the CIO. These agencies are now fully conversant with the seriousness of the situation.

The last part of this dimension refers to the public reaction within Zimbabwe. Funding by Non-government Conservation Organisations to support the field effort is essential and the public of Zimbabwe and the media have to be made aware of this crisis, with national outrage being the objective.

3. International Reaction

International politics is a key aspect of this dimension. Incursions of armed bandits entering into a Soveriegn State from a neighbouring country is an act that must incite considerable debate at Head of State level as this poses a direct threat to national security. This debate should have as its objective international cooperation between the two countries concerned, to prevent these incursions and to deal with the matter as a regional problem. Nations in the region must be forced to comply with international convention that specifically protects the rhino and its habitat, e.g. CITES.

Outside the continent of Africa this issue requires to be brought to the attention of states directly involved in the trade of rhino horn, with political pressure being brought to bear upon such states to prohibit the trade. As this is an

As with the national media, continuous communication must be maintained with the international media as a matter of extreme urgency. They should be encouraged to visit the operational area on a regular basis and be exposed to the problem at first hand. Environmental issues receive constant coverage and therefore the rhino crisis should be exposed and publicised at every available opportunity to promote international outrage.

4. Intelligence

A systematic method of gathering intelligence on all aspects of rhino horn trade commencing at its source, i.e. poachers and their direct overseers and then finally where the horn is sold and processed, must be formulated. Approximately 60 000 rhino have been killed on the continent of Africa over the past 15 years. This represents a well structured and highly professional crime syndicate involving politicians, bureaucrats and businessmen who are obviously corrupt and care little for human lives or the economy of their respective countries, but are motivated by greed and personal ambition.

A well documented dossier on these organisations should be opened, thereby establishing a base on which the other three dimensions can effectively operate.

A prerequisite to this is direct and continuous cooperation from international law enforcing and intelligence gathering agencies. A formal request should be put to foreign embassies of countries that actively support the rhino survival campaign to assist in this intelligence gathering effort.

Conclusion

Black rhino on the Continent of Africa now face almost certain extinction and Zimbabwe is clearly in a position to prevent this tragedy occurring. Therefore each of the four dimensions of the overall strategy for conserving the black rhino must be fought with equal vigour and determination if we are to succeed. The drastic predicament now facing the black rhino symbolises the true situation for conservation of African wild life. This atrocious state of affairs is an indictment upon conservation agencies and governments, clearly showing that they have failed to effectively implement their respective conservation policies and enforce the laws that protect wild life. The hope is that Zimbabwe's attempt to save the last remaining viable, natural population of black rhino from extinction will be the watershed for the reversal of this intolerable situation. Environmentalists of the world need to take cognisance of this desperate stand Zimbabwe is taking by actively engaging themselves with the overall strategy.

Zimbabwe Government has made a decision that there will continue to be a viable rhino population in the wild; hence the war against poaching. This war is supported by programmes of translocation and captive breeding programmes. The progeny will be used for restocking those areas with low concentrations of rhino.

6

The international community can help in stopping the international trade in rhino horn; by raising funds to equip researchers, anti-poaching units and intelligence organisations monitoring trafficking of rhino and other game products.

If the rhino is allowed to become extinct the next animal to be extinct will be the elephant. Funds are also required for resource education to make rural populations become aware of the value of wild fauna and flora.

TABLE 1.

Estimate of black rhinoceros numbers in African countries
(Data from Cumming, 1987)

Country	Year 1980	1984	1986
Angola	300	90	?
Botswana	30	10	?
Cameroon	100	110	70
Central African Rep.	3 000	170	?
Ethiopia	20	10	?
Kenya	1 500	550	381
Malawi	40	20	30
Mozambique	250	130	?
Namibia	300	400	440
Rwanda	30	15	20
Somalia	300	90	?
South Africa	630	640	510
Sudan	300	100	?
Tanzania	3 795	3 130	400
Chad	25	5	?
Uganda	5	0	0
Zambia	2 750	1 650	200
Zimbabwe	1 400	1 680	1 737

APPENDIX I

OPERATION STRONGHOLD STATISTICS JUNE 1988

JULY 84 - JUNE 88

Rhinos killed	-	423	
Poachers killed	-	39	
Poachers captured	-	31	
National Parks casualties	-	Nil	
Rifles recovered	-	38	
Ammunition recovered	-	+ 5 000	rounds

STATISTICS FOR 1988

Known rhinos killed	-	21	
Poachers killed	-	9	
Poachers wounded/escaped	-	3	
Poachers captured	-	5	
Weapons recovered	-	6	(3 x AK47) (1 x SKS) (1 x .375) (1 x .308)

BREAKDOWN FOR RHINOS KILLED IN OPERATION STRONGHOLD

Charara Safari Area	-	19
Rifa Section	-	83
Nyakasanga Section	-	67
Mana Pools National Parks	-	53
Sapi Safari Area	-	50
Chewore Safari Area	-	114
Kanyemba Area	-	13
Dande Safari Area	-	24

HWANGE OPERATIONAL AREA STATISTICS

Known rhinos killed	-	5	
Poachers killed	-	3	
Poachers captured	-	3	
Rifles recovered	-	2	(1 x AK47) (1 x 12G Shotgun)
Ammunition	-	+ 450	rounds

GONAREZHOU OPERATIONS AREA STATISTICS

Known rhinos killed	-	+ 25	
Poachers killed	-	2	
Poachers captured	-	Nil	
Rifles recovered	-	2	(1 x AK47) (1 x SKS.)

The Herald

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HARARE, THURSDAY JUNE 16 1988

Two poachers shot in Hwange National Park

Herald Reporter

TWO rhino poachers in a gang of six hunting in the new poaching zone of Hwange were shot dead and two more captured by an anti-poaching unit of the Department of National Parks and Wild Life Management last week.

The chief warden, Mr Glenn Tatham, said yesterday that the remaining two poachers had escaped back to Zambia. No rhino were killed by the gang.

This is the second known incursion in Hwange by Zambian poachers, who were now hunting rhino moved to the area from the Zambezi Valley.

Mr Tatham said a gang of armed poachers from Zambia had on Friday last week entered the Chete Safari Area of Binga District, but the National Parks units in the area had to date not made any contact with the gang, which was now presumed to have gone back to Zambia.

"It is clearly evident that armed rhino poachers intend to kill rhino, wherever they happen to exist, with the easy access along the international boundaries between Zimbabwe and Zambia," he said.

Rhino which had been translocated from the Zambezi Valley to Hwange National Park were now threatened by poachers.

"This translocation was carried out at tremendous cost. Recent events have shown that the translocated rhino are under the same threat as those in the Zambezi Valley," said Mr Tatham.

Poachers had come to the Hwange area early in April and their presence in the Sinamatella and Deka sections of the area was confirmed on June 6.

"The poachers were armed with automatic weapons and were known to be hunting rhino," said Mr Tatham.

"At about 12.30 pm on June 7, one of our anti-poaching units caught up with the gang and, in the ensuing contact, two of the poachers were killed, one was wounded and captured and the remaining three escaped with an AK-47 rifle and over 400 rounds of ammunition.

"The gang had as yet not killed any rhino," said Mr Tatham when recounting the activities of the six-man gang of poachers and their contact with the anti poaching units.

"An intensive search for the outstanding three poachers was mounted by the National Parks, police and army units."

On Monday this week another member of the six-man gang was captured while trying to escape back to Zambia and it had since been confirmed that the remaining two had escaped back to Zambia with their AK-47 rifle, said Mr Tatham.

The chief warden said that in the Hwange area a total of five rhino had been killed, three poachers killed, three captured and two rifles recovered since the incursions began just over two months ago.

In the Operation Stronghold area, a total of 423 rhino were killed, 39 poachers killed, 31 captured, 38 rifles recovered and more than 5 000 rounds of ammunition seized in the period between July 1984 and this month.

Between January this year and this month, 21 rhino were killed compared to 91 during the same period last year, said Mr Tatham, adding that this showed that anti-poaching units were succeeding.

"Whoever the poachers are, we will find them," he declared.

The Herald, Monday May 15 1989

THE aftermath of a successful patrol. Looking at the dead poacher lying by a helicopter landing zone near a pan are Cde Seyprian Muleya (extreme left) and Cde Luckson Ziso (extreme right), two members of the three-man patrol which tracked the gang. In the centre are: Mr Ian Peacock, who flies the helicopter lent by the World Wildlife Fund; Chief Warden Mr Glen Tatham; Mana Pools Warden Cde Francis Buyeye; and three policemen from the Mana Pools police post who were helping to remove the body.

Three rhinos killed as poachers move into Hwange

By Gareth Willard
MANA POOLS.

BLACK rhino moved from the Zambezi Valley to the Hwange area are coming under threat from poachers operating out of Zambia with a gang of six killing at least three rhino in the Sinamatella and Deka sections early last month.

Another rhino was killed in the Chete Safari Area of Binga District in a lightning operation by a Zambian poaching gang on April 21, the chief warden of the Department of National Parks and Wildlife Management, Mr Glenn Tatham, said yesterday.

This brings to at least 16 the number of black rhino killed by poachers this year in northern Zimbabwe, the other 12 being in the Operation Stronghold area in the Zambezi Valley.

The spread of poaching to previously unaffected areas stretches National Parks resources even further, said Mr Tatham who was interviewed at Mana Pools where he was checking the progress of anti-poaching patrols who killed a poacher on Saturday.

Most of the $100 000 recently given to the Save the Rhino Campaign by Turnall Holdings would be devoted to equipment and vehicles for National Parks anti-poaching units in the Hwange area, he said.

The gang which hit the rhino in the Hwange area last month also killed a giraffe, a warthog and several impala and were armed with at least two AK assault rifles. Items and other evidence found in their camps showed that they came from Zambia and travelled by vehicles.

The co-ordinator of the anti-poaching operation in this area, Mr Mark Brightman, said at Mana Pools yesterday that so far this year there had been 21 known incursions of poaching gangs from Zambia.

There had been seven contacts with these gangs in which eight poachers were killed and four captured. So far 12 rhino carcasses have been discovered.

Since the assault on Zimbabwe's black rhino started more than three years ago poachers have killed 410 rhino, almost all in the Strong-

Rhinos killed

● From Page 1

hold area, and 38 poachers have been killed by Parks patrols.

A total of 38 weapons have been recovered, along with 5 000 rounds of ammunition.

As well as guarding the Zambezi Valley population of black rhino, the largest population left in the world, National Parks is translocating rhino to other areas. So far 233 have been moved to several locations, helping to ensure the animals' safety and also reducing densities in the valley making it much harder for a gang to make a big killing.

Rhino are poached for their horns which fetch high prices in the Yemen, where rhino-dagger handles are a status symbol, and in the Far East where powdered horn

Eighth poacher shot dead

Herald Reporter

ANOTHER poacher was shot dead on Saturday afternoon in the Zambezi Valley, the eighth this year, and a major manhunt is now in progress for the other two members of the gang, one of whom is suspected to be a notorious leader of a poaching gang.

A three-man National Parks patrol under Sergeant Charumbira heard three shots in the Sapi Safari area at around 2 am on Saturday. At first light they started tracking.

At 11 am they heard two more shots, this time within 500 m from where they were and 40 minutes later they had found the tracks of the gang in the thick Jesse bush and started following.

At about 1.50 pm the patrol made contact. "We found them cooking," said Cde Seyprian Muleya, who with Cde Luckson Ziso, was with Serg Charumbira.

"As we saw them one of them saw us and gave the warning." It was the man who spotted the patrol who died while the other two managed to escape in the thick scrub.

More Parks patrols have been deployed to hunt the gang.

HARARE, MONDAY MAY 23 1988
PO Box 396, Harare Phone 795771 Telex No 2274

Poacher killed in clash

Herald Reporter

ZIMBABWE anti-poaching patrols sustained their first casualty in the war on rhino poachers when Ranger Isaac Bhimba was slightly injured in a contact in the Zambezi Valley on Saturday night which also saw one poacher killed and another wounded.

The chief warden of National Parks and Wildlife Management, Mr Glen Tatham, said yesterday that Ranger Bhimba had received a nick on his upper thigh during the contact, but was "fine" and had, in fact, taken part in the follow-up operation against the survivors of the gang.

The wounded poacher managed to escape back to Zambia, but National Parks recovered two rhino horns from the gang.

The poacher in the group who was killed was the ninth to die this year in contacts with National Parks anti-poaching patrols and the 39th since the assault on Zimbabwe's black rhino started more than three years ago. At least 410 rhino have been killed by poachers.

Saturday's contact comes almost exactly a week after a contact with another three-man gang in the valley in which a poacher was killed. Mr Tatham said yesterday that a survivor of that contact had given himself up.

1987: January - July

Incursions:	29	
Rhino poached:	51	
Contacts:	17	
Poachers killed:	10	
Poachers captured:	2	
Poachers escaped/wounded:	5	
Weapons recovered:		
AK	3	
375	1	
SKS	1	
Ammunition recovered:	800	rounds (7.62; .375; .303)
Horns recovered from contacts:	11	pairs
Rhino translocated:	70	

OPERATION STRONGHOLD

July 1984 - July 1987
288 rhino killed

Area	1984	1985	1986	1987	Total
Kariba	-	6	5	2	13
Rifa	10	39	8	6	63
Sapi			30	5	35
Nyakasanga	35		22		57
Mana		10	18	16	44
Chewore	2		24	27	53
Dande			5	5	10
Kanyemba			9	4	13
	12	90	121	65	288

Poachers killed:	29	
Poachers captured:	21	Prison sentences ranging from 6-11 years
Poachers wounded/escaped:	8	
Weapons recovered:	30	
Ammunition recovered:	Several thousands	

OPERATION STRONGHOLD STATISTICS JUNE 1988

JULY 1984 - JUNE 1988

Operation Stronghold Only

Rhinos killed	423
Poachers killed	39
Poachers captured	31
National Parks casualties	Ø
Rifles recovered	38
Ammunition recovered	5 ØØØ rounds +

Statistics for 1988		Same Period 1987
Known rhinos killed	21	91
Poachers killed	9	1Ø
Poachers wounded/escaped	3	5
Poachers captured	5	2
Weapons recovered	6	5
Contacts	13	15
Incursions	26	28

Breakdown for Rhinos killed in Operation Stronghold - see map

Charara Safari Area	19
Rifa Section	83
Nyakasanga Section	67
Mana Pools National Parks	53
Sapi Safari Area	5Ø
Chewore Safari Area	114
Kanyemba Area	13
Dande Safari Area	24

Hwange Operational Area Statistics

Known rhinos killed	5
Poachers killed	3
Poachers captured	3
Rifles recovered	2
Ammunition	45Ø rounds +

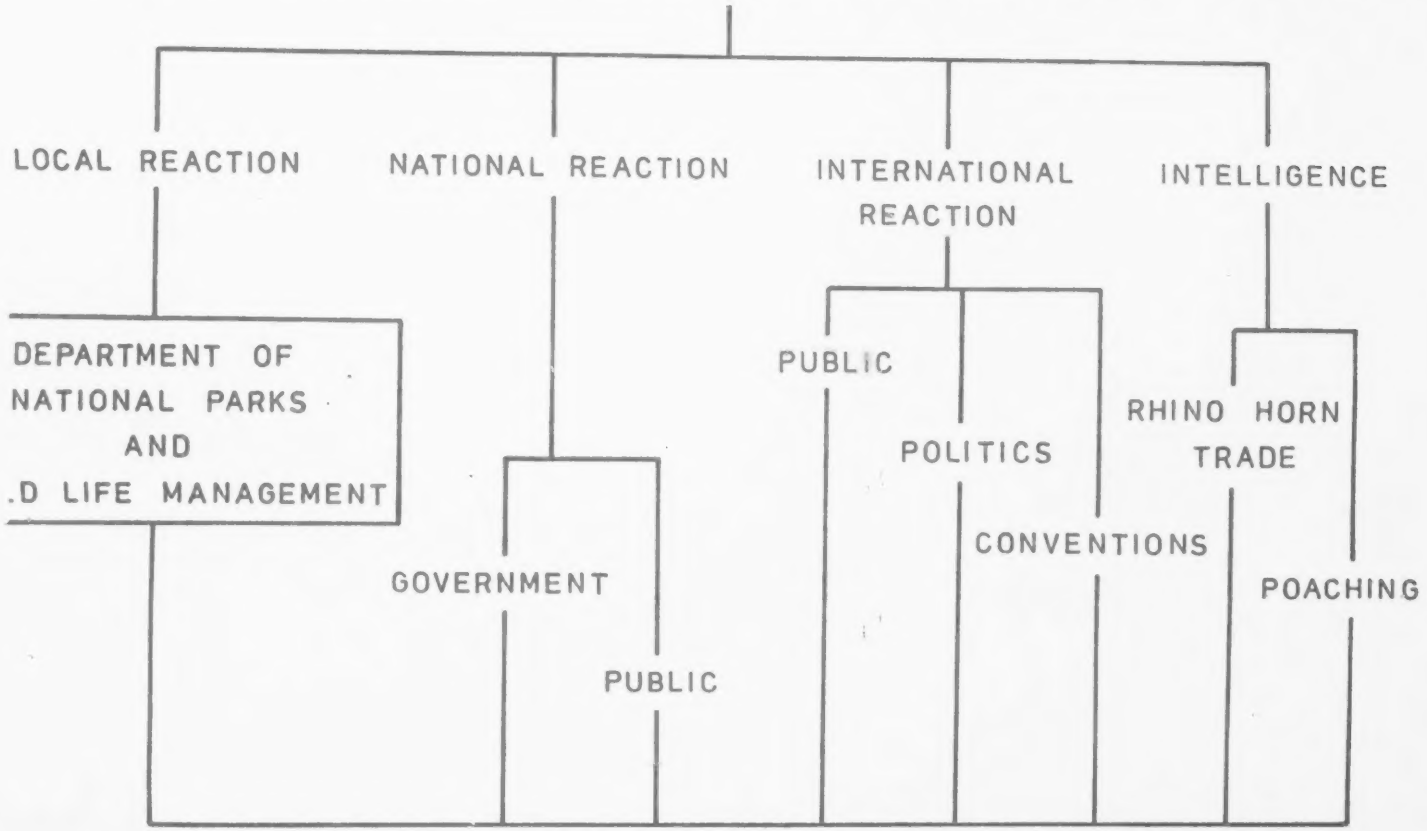
Gonarezhou Operational Area Statistics

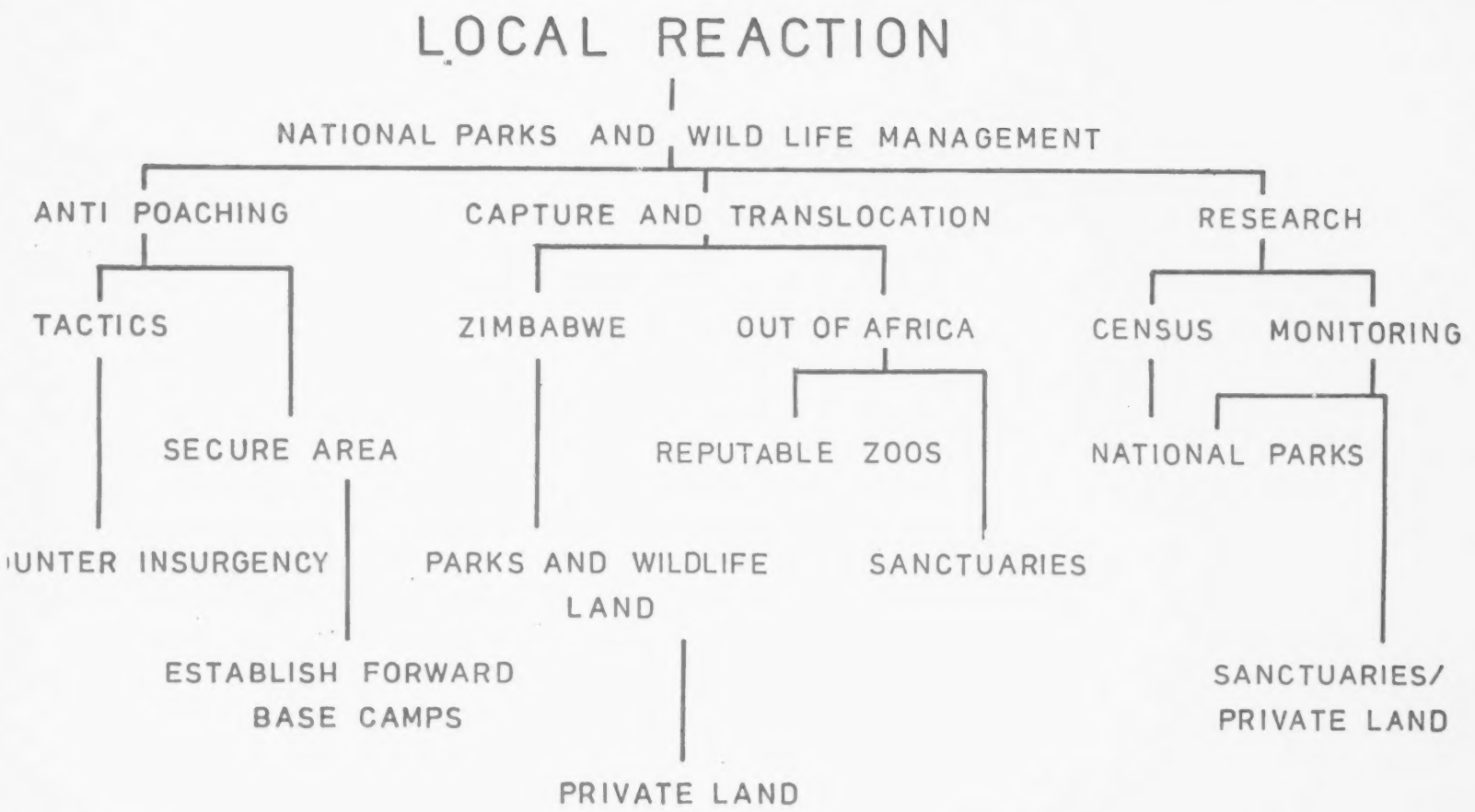
Known rhinos killed	25
Poachers killed	2
Poachers captured	Ø
Rifles recovered	2

Sebungwe Operational Area Statistics

Known rhinos killed	5
Poachers killed	Ø
Poachers captured	Ø
Rifles recovered	Ø
Ammunition	Ø

BLACK RHINO CONSERVATION STRATEGY




LOCAL REACTION
NATIONAL PARKS AND WILD LIFE MANAGEMENT
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MONITORING
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REPUTABLE ZOOS
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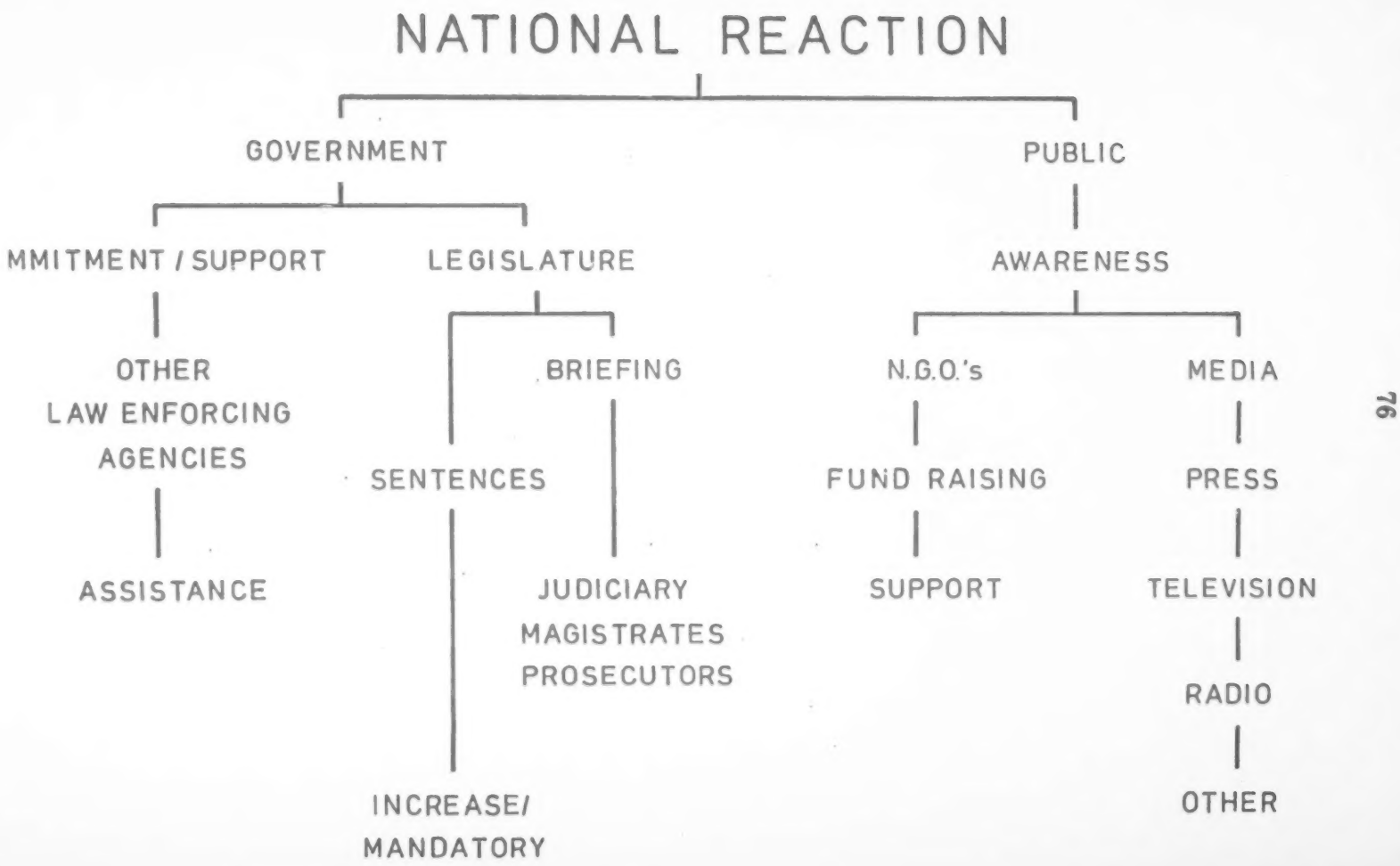
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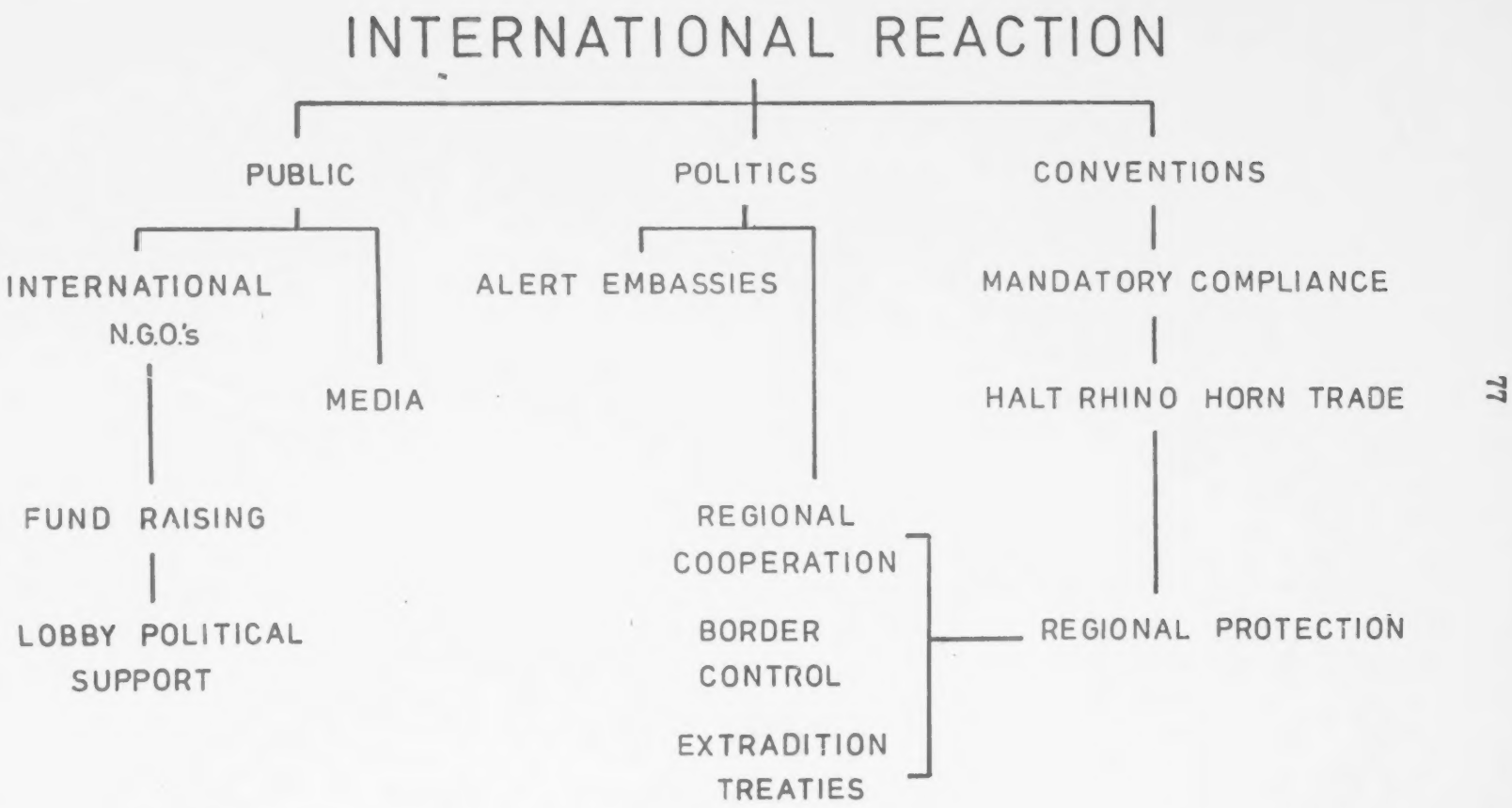
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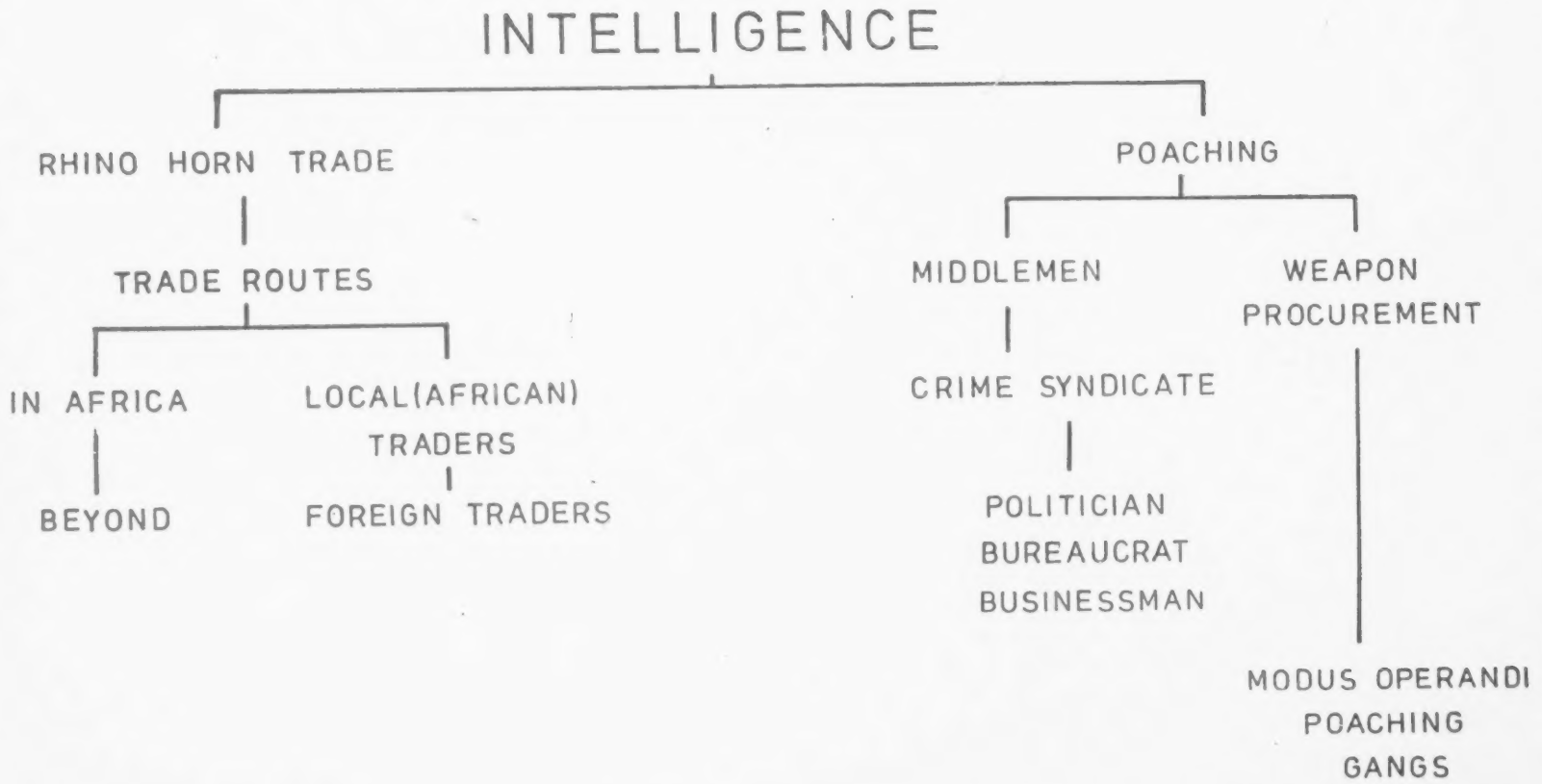
INTELLIGENCE
RHINO HORN TRADE
TRADE ROUTES
IN AFRICA
BEYOND
LOCAL(AFRICAN) TRADERS
FOREIGN TRADERS
POACHING
MIDDLEMEN
CRIME SYNDICATE
POLITICIAN
BUREAUCRAT
BUSINESSMAN
WEAPON PROCUREMENT
MODUS OPERANDI
POACHING GANGS

Translocation/Captive breeding Program

Visitor Program Service of
Meridian House International
1776 Massachusetts Avenue, N.W.
Washington, D.C. 20036
Telephone: (202) 822-8688

Biographic information on Mr. Willie NDUKU of Zimbabwe who has been invited to the United States under the auspices of the International Visitor Program of the U.S. Information Agency (USIA). The visitor's program is being coordinated by Mr. Don Clark and Ms. Kim Buccieri of the Visitor Program Service of Meridian House International (VPS/MHI).

**********May 15 - June 08, 1988

NAME:	Dr. Willie NDUKU
PRESENT POSITION:	Director, Department of National Parks and Wildlife Management, 1987-present
PREVIOUS POSITIONS:	Deputy-Director, Department of National Parks and Wildlife Management, 1981-87 Director, Hydrobiology Research Unit, University of Zimbabwe, 1977-80 Senior Research Fellow, University of Rhodesia (working on the physico-chemical conditions in Rhodesian fresh waters and sediments), 1973-76 Demonstrator in somatic physiology under Dr. Dawner, University of Waterloo, Ontario, Canada, 1969-73 Graduate Assistant, investigating the ecology and distribution of fresh water gastropods in St. Vincent Island, 1972-73 Professional Officer, Agricultural Research Council of Central Africa, 1966-68 Professional Officer, Department of Research and Specialist Services, Ministry of Agriculture, 1968
ACADEMIC BACKGROUND:	Certificate, Resource Management and Economic Development, University of Michigan, 1982 Ph.D. and MS. in Biological Sciences, Waterloo University, Ontario, Canada, 1973 B.S. in Biology, University of London, 1964

PERSONAL DATA

Born:	June 02, 1939 in Chipinge, Zimbabwe
Marital Status:	Marred
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Preferred mailing address:	29 Twickenham Drive, P.O. Mount Pleasant, Harare, Zimbabwe; telephone: (Home) 302464, (Office) 707624
Languages:	English
Travels Abroad:	Canada, Buenos Aires to attend Cities Conference in May 1985, Las Vegas to attend SCI Convention in January 1985

-continued-

Visitor Program Service of Meridian House International is a private, nonprofit organization operating under a grant from the U.S. Information Agency (USIA) to arrange professional programs and travel, in the United States, for foreign visitors participating in the International Visitor Program of USIA.

MEMBERSHIPS:	Zimbabwe Scientific Council Editorial Board of the Zimbabwe Journal of Agriculture The American Society of Limnology and Oceanography
PUBLICATIONS:	Numerous publications including: "Wildlife and Human Welfare in Zimbabwe", FAO 1985; "Cationic Responses of Organs and Haemolymph of Biomphalaria Pfeifferi (Krause) Biomphalaria Glabrata (Say) and Helisoma Trivolvis (Say) Gastropoda: Planorbidae in response to Cationic Alterations of the Medium", 1980; "Thermocline Stability in Lake Mcllwaine, Rhodesia. Limnology and Oceanography", 1979
AVOCATIONAL INTERESTS:	Unknown

PROGRAM OBJECTIVES:

-Visit national parks for meetings with NPS managers on resource education, management and park interpretive programs

-Commercial side of wildlife production

-Fresh water fish farming and recreational fishing (development of fish resources as a source of protein)

-Wildlife preservation groups in particular those concerned with the "Save the Black Rhinoceros" campaign

Mr. SCHEUER. Thank you very much for honoring us with your presence and your very fine testimony.

Have you been working or consulting with the American ambassador in Zimbabwe and the AID mission in Zimbabwe for funding and equipment for your various needs?

Dr. NDUKU. Yes, yes, Mr. Chairman. Maybe I overlooked one point. The ambassador made it possible for the U.S. Government to provide us with half a million U.S. dollars to build a decent accommodation for our people operating in the field and those houses are being built right now.

Mr. SCHEUER. The half a million dollars to do what?

[Chairman conferring.]

Mr. SCHEUER. Right, right. All right, Congresswoman Claudine Schneider.

Ms. SCHNEIDER. Thank you. I have a couple of questions I am anxious to ask you. One is that you had mentioned that where you really need to put your energies is toward focusing on the middle man.

Do you have a strategy as to how best to get at that middle man?

Dr. NDUKU. Yes, we have a strategy and let me point out that the poachers are really waging a war. It is like a mini-military type of war and most of our strategies are organized in a semi-military type of way. We don't normally want to expose our techniques for fear that the poachers will modify their techniques, too, but yes, we have a way of dealing with the middle man.

What we need to do most and foremost is to apprehend the actual poacher who crosses the border. This is the person who is going to locate the middle man.

Ms. SCHNEIDER. Where are most of those poachers coming from? Which countries on your border?

Dr. NDUKU. Well, they are crossing in from Zambia, but they are not necessarily being financed by Zambia. Some of them are being financed by people from across the ocean.

Ms. SCHNEIDER. I see, and you refuse to be specific on that. Okay, moving right along, have any of your neighbors been supportive in protecting the borders insofar as the rhinos are concerned? Is there a group effort at all?

Dr. NDUKU. Yes, we are trying, Mr. Chairman, and I think you probably heard earlier about strengthening some of those departments in an area committee.

For instance in Zambia their main constraint is the structure of their department, which is not designed to deal with poachers and it is also not designed to deal with research requirements of the animals that we are talking about, so they would really need to be strengthened——

Ms. SCHNEIDER. Okay.

Dr. NDUKU [continuing]. In order for them to be in line, but at this point in time, we are talking to Zambia and I am glad to say today, as I am sitting here, they are talking in Zimbabwe. We have a joint commission which deals with all sorts of things. We are trying to set up their anti-poaching unit in Zambia. We are also trying to set up an investigation unit which is a specialized type of investigation unit. It investigates in the bush as well as in the urban centers. We have such a structure ourselves and we are

doing very well and we are helping—I am also talking with Tanzania in Zimbabwe. They are also being taught by us and we expect next week to receive Botswana, who are also coming to receive some form of training, so we are training our neighbors but they have concerns—financial constraints, equipment constraints and so on. This is the problem that we are facing in this area.

Ms. SCHNEIDER. Let me ask one last question. Have you seen any kind of decline in the number of poachers since you started your Operation Stronghold program?

Dr. NDUKU. No, the actual number of poachers coming up across is not declining but the rate of their successes is declining as we will see—the rate of success of poaching is really substantially reduced in Zimbabwe right now. They have even shifted from the Zambezi Valley and as of last month they are not operating in the Hwange area and fortunately we got there before they did.

Ms. SCHNEIDER. Good. Well, let me commend you for your imaginative approach to solving the problem. I think it is only appropriate that you had mentioned that actually you were doing exactly what we always like our witnesses to do and that is to provide us with a list of things that you need. The fact that you even listed binoculars et cetera, I don't want you to hold out any hope despite what the Chairman has indicated about it sounding like very little money. I am just very frustrated because under this Chairman's leadership we have included some amendments to the foreign aid bill which have an impact on environment and conservation purposes, but that foreign aid bill is sitting dead in the water in the U.S. Senate.

The prognosis from what I am hearing is that it is not inclined to move in an election year because the American people are more interested in making sure that we spend every nickel that we have to fight drugs, to provide for housing, to tackle some of our own problems here at home first. Not only do you need to do your educational job at home but we need to do our educational job here in the United States so that our constituents could be more supportive of this kind of aid.

Let me also mention that in your laundry list you suggested that you needed some political pressure and moral support. Well, I think that you've learned that there certainly is a lot of moral support, not only from this Committee but also from many of the private organizations that are involved in assisting you. I think when it comes to political pressure we are very happy to develop a strategy further whereby the Chairman and the other members of this Committee could do what we can to leverage some changes rapidly so that we can see the survival of the rhino.

Thank you very, very much for your excellent insight because it will contribute to our solutions.

Dr. NDUKU. Mr. Chairman, may I just make a comment to what has been said on trafficking on drugs.

It is our experience that the same people who are involved in the trafficking of drugs are the same people who are involved in the trafficking of rhino horn, diamonds, gold. This is our experience in Zimbabwe, so there is no clear-cut distinction. If you have got good methods for apprehending traffickers in drugs we will be happy to receive it because we will use it for the same purpose. Thank you.

Mr. SCHEUER. Thank you, very much, Dr. Nduku. Congressman Bob Smith of New Hampshire.

Mr. SMITH of New Hampshire. Just one question, Mr. Chairman. I know you have another panel.

Doctor, I commend you for your leadership in your own country on this issue. We certainly appreciate that position that you have taken as advocates of the rhino and other endangered species here in America.

Do you—you don't have to answer this if you don't want to—how much support do you have in your own government for this issue? Given the number of problems dealing with populations of African as well as—not so much true in Zimbabwe as it is in Ethiopia and other countries where the human and all the other things—the demands upon the African people. How much support do you have? Are you a lonely voice crying out in the wilderness here or do you really, truly have the support of your government and other African governments on this issue? You don't have to answer it if you don't want to.

Dr. NDUKU. I think I can—it is easily answered. We have the maximum support in the country. In fact the support is so tremendous that we thank our President and we thank our Minister for particularly giving us appropriate advice and for making facilities available.

We have talked of helicopters here. Using it as an example, the Department of National Parks does use military helicopters when the going gets tough but we don't have a particular type of a helicopter—these big ones that can be able to uplift the rhino from the bush. The is the one we are looking for. We are not looking for the small helicopter; we are looking for the big helicopter to do what our requirements are.

Otherwise the Air Force, the Army are at our disposal in the quickest possible way. The police—we mount sometimes joint operations because these people cross in large numbers. So, we have maximum support. On the budget, probably we are one of those departments in Africa with maximum support. Our budget is quite high compared to the size of our economy—$21 million, we can't complain while other ministries within our same government receive $4 million, $2 million when we receive $21 million, which is a substantial stake in our budget so I can't complain.

Mr. SMITH of New Hampshire. The casualties that you have inflicted on poachers based on the news reports and numbers that we have here are certainly indicative of success and I'd hope that the reputation travels far and wide and that that will have an effect on having less poachers coming into your country and trying to take the rhino and other endangered species.

I again want to commend you for your leadership. We really appreciate it.

Dr. NDUKU. Mr. Chairman, let me explain one thing. We don't purposely go out to shoot poachers. I want to make it quite clear. It is not our intention to shoot poachers. Our intention is to try to apprehend, but these people fight back.

Mr. SMITH of New Hampshire. Right.

Dr. NDUKU. In defense of our own lives we are forced to shoot, just as your policemen here shoot at a criminal, when it gets tough that's what we do too.

They fight. As you can see from my testimony, you'll find that they use some of the military equipment. When they come across military equipment, it is not for killing black rhino or an elephant. It is for fighting back if the going becomes tough, so we are really fighting a war.

Our aim is to apprehend and to get information out of them, so that you can deal with the middle man, as I've said. Thank you.

Mr. SMITH of New Hampshire. I understand that and it's certain that an AK-47 rifle is not a hunting weapon and I understand why you'd have to defend yourself. Thank you, Mr. Chairman.

Mr. SCHEUER. Thank you, very much, Congressman, and thank you very much, Dr. Nduku for your very interesting, fascinating testimony.

We'll now go to Panel No. 4: Dr. Oliver Ryder, Center for Reproduction of Endangered Species at the San Diego Zoo, one of the great zoos in the world; Dr. Thomas Foose, Conservation Coordinator of the American Association of Zoological Parks and Aquariums; Dr. Eric Dinerstein, visiting scientist at the Smithsonian Institute; and Mr. Tony Dyer.

Will Iain Douglas Hamilton join us at the witness table? This is a very impressive panel. I'm sure we'll have some questions for you. I'll ask you to restrict your remarks to five minutes as we're doing with our questions up here. The full texts of your statements will be printed in the record and so I hope you'll chat with us informally.

Don't hesitate to revert to anything you may have heard discussed today either from the witnesses or from one of the members of congress. So, we'll start with you, Dr. Foose. Please proceed. If you could revert to the question I asked, the question of starting new sanctuaries in other countries, whether that is a practical and doable possible option, I'd appreciate that. Let's have some staff person turn out the lights for us.

STATEMENTS OF DR. THOMAS J. FOOSE, CONSERVATION COORDINATOR, AZPA; DR. IAIN DOUGLAS-HAMILTON; DR. ERIC DINER STEIN, VISITING SCIENTIST, SMITHSONIAN INSTITUTION; DR. OLIVER A. RYDER, GENETICIST, SAN DIEGO ZOO; AND ANTHONY DYER

Dr. FOOSE. Thank you, Mr. Chairman. Obviously, I intend to use slides for my presentation and I will indeed attempt to respond to the issue that you've requested.

The first two slides will visualize what you so vividly described this morning about the gruesomeness of a poached rhino. Preserving rhinos certainly will require protecting them from the dual threats of poaching and to a lesser extent, habitat destruction. Protecting rhinos and their habitats will not be enough to ensure their long-term survival.

Surviving rhino populations are going to have to also be managed over the long term. The reason is that populations of all five extant species have been reduced to such small numbers that yet a

third major threat imperils their survival. Small populations, even if well protected, are vulnerable to a number of environmental, demographic and genetic problems that can cause extinction.

Genetically, small populations lose genetic diversity at a rapid rate. Their gene pools are converted into gene puddles. Sooner or later, this loss of genetic diversity can cause extinction.

Small populations are also especially susceptible to extinction because of natural disasters, climatic cataclysms and epidemic disease. An epidemic recently extinguished the last known wild population of black-footed ferrets in the United States and has already jeopardized the last definitely known population of Javan rhino in Indonesia.

All of these problems are a function of population size. The smaller the population, the greater the problems.

Consequently, conservation strategies for species that are reduced in number must be based on maintaining certain minimum viable populations, in other words, populations that are large enough to be viable despite these genetic, demographic and environmental problems.

I'm going to move over some of these slides because I had prepared a 10-minute presentation and I will try to compress it.

Probably none of the five rhino species are at acceptable MVP levels. The black rhino is perhaps the most critical case at the moment in terms of the poaching problem but all five species of rhino around the world need to be in intensive care. Minimum viable populations for the rhino will probably require that we maintain hundreds, perhaps thousands, of animals.

It will be difficult or impossible for any rhino species to maintain single contiguous populations of many hundreds, or even thousands. However, it is possible for smaller populations and sanctuaries to be viable if they are managed as a single larger population by moving animals around as Dr. Nduku discussed in the last panel. To a great extent, the wild is really becoming a mega-zoo that's going to require similar kinds of intensive management that are applied in zoos.

Considering these population biology problems in conjunction with the crisis for the rhino species, a global conservation strategy for rhinos is suggested that consists of two major components. The first is intensive protection and management of populations that are actually viable in the wild. In other words, concentrate the field efforts on those populations that are large and protectable enough for long-term viability.

In this regard, priorities should probably be extended to individual populations that are or can be, if they are protected, 100 or more rhinos. This kind of strategy is already being applied for the conservation of the Sumatran Rhino by the IUCN Asian Rhino Specialist Group. Although the estimated 900 surviving Sumatran rhinos are widely distributed over much of southeast Asia, five main sanctuaries and populations, each capable of accommodating 100 or more rhino for a total of about 2,000 have been recognized as priorities.

Collectively, for all five rhino species, there are perhaps 30 major viable populations and sanctuaries that should receive priority. Thirty major populations in about eight countries that include

India, Malaysia and Indonesia as well as the ones that have already been cited today.

I will disagree perhaps with some of the previous witnesses in the opinion that funds on the order of about $3 million if provided by the United States, distributed over these 30 major sanctuaries, would be very beneficial, not only to conservation of the five rhino species, but to many other species of wildlife.

The second major component of the global strategy that I'm proposing is captive propagation to reinforce wild populations. We have developed captive programs in North America for three of the rhino species. We expect to develop it for the fourth, the Sumatran, very soon and are considering the possibility of developing it for the Javan.

What appears optimal and inevitable for the rhino are conservation strategies incorporating both captive and wild populations that are interactively managed for mutual support. In this regard, we are trying to maintain viable populations, minimum viable populations for rhino in captivity as a back-up to the wild populations but we do need more space and resources. We need to be able to maintain more animals.

There is in my opinion, much merit to considering the establishment of some large rhino propagation centers in the United States in areas similar to the natural habitats of these species in the wild.

Zoos are becoming larger and more naturalistic. The wild is becoming smaller and more artificial. Again, the wild is becoming a mega-zoo that is going to require a lot of intensive management. One way zoos can assist and are assisting with conservation of the species in the wild is by transfer of the intensive management, in other words, captive-type management technology that we have developed for genetic and demographic management of species in captivity.

Finally, I would comment that, although this hearing is testimony to the fact that there are many organizations, agencies, institutions and individuals in the United States interested in conservation, that resources are still very limited and the crisis for the rhino is intensified. I believe that it's time for more efficient and effective mobilization of the home-front for the rhino war effort by organizing a coalition of all of these public and private groups to coordinate their activities better. Thank you.

Mr. SCHEUER. Thank you very much. Thank you very much, Dr. Foose, for this very interesting testimony. We are going to suspend for about twelve minutes for a roll call vote and then we'll be back and we'll continue with the panel.

[Recess.]

[The prepared statement of Dr. Foose follows:]

STATEMENT OF

THOMAS J. FOOSE, PH.D.

on behalf of

AMERICAN ASSOCIATION OF ZOOLOGICAL PARKS AND AQUARIUMS

for the

HEARING ON
THE ENDANGERED RHINOCEROS

before the

SUBCOMMITTEE ON NATURAL RESOURCES,
AGRICULTURE RESEARCH AND ENVIRONMENT

of the

COMMITTEE ON SCIENCE AND TECHNOLOGY

of the

UNITED STATES HOUSE OF REPRESENTATIVES

22 JULY 1988

My name is Thomas J. Foose. I am the Conservation Coordinator for the American Association of Zoological Parks and Aquariums (AAZPA). As such my primary responsibilities are the coordination of the captive propagation programs for endangered species, including rhinos, in zoos and aquariums in the United States and Canada. I am also a member of both the Asian Rhino Specialist Group and the African Elephant and Rhino Specialist Group of the Species Survival Commission (SSC) of the International Union for Conservation of Nature and Natural Resources (IUCN).

American Association of Zoological Parks and Aquariums

VIABLE STRATEGIES FOR CONSERVATION OF RHINOS

Introduction

The 5 extant species of rhinoceros provide spectacular examples of the rapid and accelerating disappearance of wildlife being engulfed by a flood of destruction on our planet. The immediate causes of this endangerment and extinction of wildlife are habitat destruction and unsustainable exploitation. In the case of the rhinos, the second cause, in the form of decimation by poachers, is the primary problem. Rhinos, like so many of the megavertebrates, are species that actually vanish well before their habitat disappears. To preserve the species of rhino, it is obviously necessary to protect them from poacher activity and habitat destruction.

However, while such protection is necessary, it is not sufficient. It is no longer enough to protect rhinos and their habitat. Surviving rhino populations must also be managed if they are to survive over the long-term. The reason is yet a third threat to survival of the 5 rhino species. This threat is the problems of small populations.

Viable Populations for Rhinos

Small populations, even if well protected, are vulnerable to a number of environmental, demographic, and genetic problems that can imperil their survival especially over the longer-term, i.e., the next several centuries (Figure 1). These problems are random or stochastic in nature. Hence, they are impossible to predict. However, there are remedial measures possible through management. The problems of small populations apply to species in both the wild and in captivity, although much of the management methodology is being developed in zoos.

Genetically, small populations lose genetic diversity at a rapid rate. All species appear to possess some amount of genetic diversity, known as their gene pool. Genetic diversity is important for species at both the population level and the individual level. At the population level, genetic diversity is

vital to permit species to adapt to continually changing environments (e.g., the appearance of a new disease). At the individual level, genetic diversity is necessary to maintain fitness or vigor, i.e. the ability to survive and reproduce adequately under existing environmental conditions. When populations are reduced to very low numbers (a few tens or hundreds), their gene pools are converted into gene puddles (Figure 2). Sooner or later, there is scientific reason to expect that this loss of genetic diversity can and will jeopardize the survival of the species.

There are also problems of demographic and environmental uncertainty. Demographically, small populations are at risk because of such factors as random failures in birth or survival rates, distorted sex ratios, or unstable age structures. As an example, consider sex ratios. In larger populations and over long periods of time in the wild, sex ratios at birth will frequently be even (i.e., equal numbers of males and females) or at least will represent some average that has evolved as adaptive for the species. However, in very small populations, these averages may not be realized and sex ratios can become disastrously biased, i.e. predominantly or exclusively all males or females to the point where reproduction is seriously, often lethally disrupted.

Environmentally, small populations are especially susceptible to extinction because of natural disasters, climatic cataclysms, and epidemic disease. The reality of such catastrophes is well exemplified by the two epidemics that recently and rapidly decimated the last known wild population of black-footed ferrets. First, an outbreak of sylvatic plague devastated their prey population (prairie dogs) while the coup de grace was delivered to the ferrets themselves by canine distemper. Until their sudden devastation by these two disease epidemics, many wildlife managers considered this population secure because it was "large" (in their opinion) and growing, despite admonitions from conservation biologists that the situation was flirting with disaster. A similar, but fortunately, so far, less devastating epidemic has already afflicted the last definitely known population of Javan rhino in Indonesia.

All of these problems are a function of population size. The smaller the population, the greater the problem. As a consequence, conservation

strategies for species that are reduced in number, and most probably will remain that way for a long time, must be based on maintaining certain minimum viable populations (MVP's), i.e. large enough to be viable in terms of the genetic, demographic and environmental problems.

There is no single magic number that constitutes an MVP for all species, or for any one species all the time. MVP's depend on the genetic and demographic objectives of the conservation program and biological characteristics of the species and its environment. It is possible to perform population viability analyses (PVA's) to prescribe how large a population might be required for any species under any particular circumstances. One generalization seems possible. Species like the rhinos will almost certainly need effective population sizes of several hundreds or perhaps thousands to be viable. Indeed, there has already been some attempt to perform population viability analysis for rhino species in both Asia and Africa. A preliminary recommendation is that each distinct kind of rhino may need an effective population size of 500.

However, the effective size of a population is not the same as the actual number of animals. Instead, the (genetically) effective size is a measure of how the members of the population reproduce with one another to transmit their genes to future generations. Normally, the effective population size, denoted by N_e, is much smaller than the total number of animals. Such normal occurrences as failure of some/many animals to reproduce, disparities in lifetime production of offspring (lifetime family sizes) or biases in the sex ratio of breeding animals will depress N_e well below the census number. For example, N_e may be as low as 10 to 25% of the total population number. Thus, a recommended N_e of 500 to provide genetic and demographic viability for each distinct kind of rhino may require that a population of at least two or more thousands actually be maintained. It is also important to realize the MVP's are just that, the minimum that is scientifically recommended as necessary for long-term survival under the best information available. More is always better and safer.

A survey of the estimated numbers surviving in the wild for each of the 5 species of rhino suggests that none may be at acceptable MVP levels (Table 1).

The situation is even worse if it is the case that within these species there are subspecies that are different enough to justify preservation as separate entities. For example, there has been reason to recognize at least 4 different geographical varieties (i.e., "subspecies") of black rhino that should be preserved separately. (There actually have been 7 subspecies described.) Extending the logic developed earlier, i.e. that an N_e of 500 may be required and that 2000 rhinos may actually be needed to achieve this genetically effective size, it is simple arithmetic to calculate that 8000 black rhino may be necessary to preserve viable populations of all 4 geographic varieties. This number of 8000 is over twice the estimated number that survive on the entire continent of Africa. The conclusion is that a viable strategy for conservation of the black rhino will entail not only arresting the decline in number but also provide for expanding populations to at least twice their present levels as soon as possible.

It will be difficult or impossible for any of the rhino species to maintain single, contiguous populations of 2000 or more. However, it is possible for smaller populations and sanctuaries to be viable if they are managed in such a way to constitute what is known as a metapopulation, whose collective size is equivalent to the MVP. This kind of management will entail periodic movement of rhinos from one small separate "subpopulation" to another to correct genetic or demographic problems (Figure 3). Viability analyses can provide guidelines on the number, size, and interaction of the separate subpopulations that are being managed collectively and interactively to constitute the metapopulation.

One result of note from some preliminary analyses is that a viable number for each separate subpopulation of rhino should perhaps be at least 100 animals. However, this recommendation does not necessarily refer to the actual number of rhinos existing in some defined area, e.g. a sanctuary, of the natural range of the species now. Instead, this guideline for an MVP for a subpopulation represents a minimum number that the area or sanctuary must be able to sustain if the rhinos can be protected and hence permitted to grow to the carrying capacity of the habitat.

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It must be reiterated that the numbers for viable rhino populations are preliminary and should not be interpreted as definitive prescriptions. Much more population viability analysis is needed to provide the foundation and framework for rhino conservation strategies. However, it seems unlikely that the numbers suggested above for viability will be any lower after further analyses.

It is also worthwhile to observe that sustaining MVP's for rhino in the wild also implies maintaining minimum critical areas of natural habitat that can and will accommodate many other species. Megavertebrates like the rhino are both flagship and umbrella species for conservation of many other kinds of wildlife. This function should ameliorate, in part, the concern that investing so much money for the preservation of a few megavertebrates like the rhinos is unjustified while the greater number, and perhaps more important but less charismatic, species may be neglected.

A Conservation Strategy for Rhinos Based on Viable Populations

These population biology considerations in conjunction with the acuteness of the crisis for rhinoceros species suggests a conservation strategy for rhinos that consists of 2 major components.

(1) Intensive management and protection of viable populations in the wild.

In other words, concentrate field efforts, and available resources, on those wild populations that are large and/or protectable enough to be viable for the long-term. Based on the discussion in the previous section, this goal would translate into trying to secure enough subpopulations, normally of at least 100 rhinos each, to produce a metapopulation at least equivalent to the MVP recommended for the species.

This kind of strategy has been adopted for conservation of the Sumatran rhino by the IUCN Asian Rhino Specialist Group under Chairman Mohd. Khan of Malaysia. Although, the estimated 900 Sumatran rhinos

are widely distributed over much of Southeast Asia, 5 main sanctuaries and populations, each capable of accommodating 100 or more rhino for a total of 2000, have been recognized as viable in terms of priorities for allocation of resources and effort on the species in the wild.

The African Elephant and Rhino Specialist Group has also developed priorities for conservation efforts based in large part on population viability considerations.

The priorities developed by these IUCN Rhino Specialist Groups are the best guidelines to direct support provided from the United States to countries of origin for rhino conservation.

Population viability considerations also emphasize the importance of national, or better regional and continental, strategies and programs for rhino conservation. Again, both the Asian and African Rhino Specialist Groups have proposed and delineated such strategies.

(2) Captive propagation to reinforce wild populations.

Animals that are located outside the viable populations and sanctuaries can be employed for captive propagation or careful translocation into larger or securer areas. Such animals have been designated "doomed" in the Sumatran Rhino Conservation Strategy. A rhino is doomed if it cannot contribute to the long-term survival of the species, because it cannot be protected from poachers and/or it is not part of a population large enough to be viable genetically or demographically. (Often, there isn't even another rhino of the opposite sex around for breeding.)

The Role of Captive Propagation

Captive propagation can and must contribute to the conservation strategies for rhinos. There are a number of advantages to captivity: animals can be protected from poachers; environmental problems can be moderated; there can be

more genetic management, specifically the N_e of any given number of animals can be maximized.

In North America, the AAZPA has accorded captive propagation of rhino species it highest priority. Four of the 40 species in our formally organized programs, known as Species Survival Plans (SSP's), are rhinos. The 5th species, the Javan, is expected to be added soon. Indeed, the rhino has been adopted as the official logo of the SSP (Figure 4).

Existing SSP programs for the black, white, and Indian rhino are progressing with all species reproducing in North American zoos. It is the objective and the hope that some Sumatran rhinos will soon arrive in North America through cooperative programs with Indonesia and Malaysia to rescue "doomed" rhino in those countries. All SSP programs are organized to intensively manage the captive populations genetically and demographically to maximize preservation of the gene pool.

It should be mentioned that zoos in other parts of the world are also organizing SSP programs for rhinos. The importance of international captive programs can be appreciated again through MVP considerations. Currently, there are about 250 rhinos of 3 species in North American zoos; about 700 of 4 species in zoos worldwide (Table 2). These numbers are considerably below the MVP objectives for captive programs that have been established through appropriate population viability analyses (Table 3). More space and resources, i.e. money, are required if zoo programs are going to be able to fulfill their function in rhino conservation strategies.

In this regard, the suggestion by Congressman Scheuer during the first Congressional Hearing on Rhino Conservation is most interesting. There would be great value in trying to establish some large rhino propagation centers in the United States in areas similar to the natural habitats of these species. There has already been some interest and activity in this possibility for black rhino on the part of some ranchers for black rhino. However, to really contribute to global strategies it would be important that such developments (1) be part of the captive propagation programs already in progress, (2) be administered in such a way as to insure perpetuation of the facility beyond

the lifetimes and changing interests of private owners, (3) not be an encroachment or endangerment on areas reserved for conservation of endemic American species. Such developments would also require, or at least be greatly facilitated by, additional funds or resources not now available to the captive programs.

The World as a Megazoo

It must be emphasized that the purpose of captive propagation is to reinforce, not replace, wild populations of rhino, i.e. populations of rhinos surviving in natural habitats within their historic range. In other words, zoos must serve as reservoirs of both genetic and demographic material that can periodically be transfused into natural habitats to re-establish species that have been extirpated or to revitalize populations that have been debilitated by genetic, demographic, or environmental problems.

Indeed, what appears optimal and inevitable are conservation strategies for the rhino species incorporating both captive and wild populations that are interactively managed for mutual support and survival (Figure 5). This type of strategy is already being developed for the Sumatran rhino and attempts are in progress to develop similar programs for the black rhino.

The concept of interacting captive and wild populations accentuates another point. Zoos are becoming larger and more naturalistic. Sanctuaries in the wild are becoming smaller and more artificial, becoming, in essence, megazoos. The same kinds of intensive management in genetic and demographic terms will need to be applied to both kinds of places where rhinos are being preserved. Another way zoos can contribute to conservation of rhinos is by transfer of this intensive-management, i.e. captive-type, technology to wildlife managers in Africa and Asia. A start in this direction was generated out of the African Rhino Workshop conducted in Cincinnati in 1986. Attempts are now in progress to organize small population biology workshops in Africa, and the semblance of one has actually occurred in Malaysia.

One more area where zoos can contribute is in research applicable to conservation of rhinos. Some research of note includes: nutrition, where vitamin E deficiencies are being elucidated; disease, where a strange hemolytic anemia syndrome afflicting wild as well as captive black rhino is being investigated; and reproductive technology, where development of artificial insemination and embryo transfer techniques could greatly facilitate management of rhino in the wild as well as captivity and especially in interactions between the two (Figure 5). The SSP has recently organized a comprehensive and coordinated program of research in these areas on rhinos and is recruiting a researcher whose sole responsibility will be to coordinate the various projects. However, this kind of activity is expensive and often difficult or impossible for zoos to support out of their own budgets. Exacerbating the problem is the difficulty of securing research support from funding agencies, such as the National Science Foundation, for projects that are primarily conservation.

Mobilizing the Home Front for the Rhino War Effort

Finally, this hearing is testimony to the fact that there are many organizations, agencies, institutions, and individuals interested in rhino conservation. But resources are still limited. Moreover, the crisis for rhino survival is intensifying. It is time for the most effective and efficient action possible. The kind of global strategy delineated above is intended to respond to this need.

It is also time for better mobilization of the home front for rhino war effort. There would, in my opinion, be great benefit in organizing a coalition of those parties in North America interested and involved in rhino conservation so they could at least communicate and perhaps coordinate. It is my intention, perhaps using this Hearing as a focal point if permissible, to circulate a letter inviting all public and private organizations, agencies, institutions, and individuals that are to my knowledge interested and involved in rhino conservation to form such a coalition or network. It is my hope that such a coalition might be guided to a great extent by the strategies and priorities formulated by the IUCN Rhino Specialist Groups.

Figure 1

DECLINE OF GENETIC DIVERSITY FOR VARIOUS EFFECTIVE POPULATION SIZES (N_e) POSSIBLE FOR A TOTAL POPULATION (N) OF 250

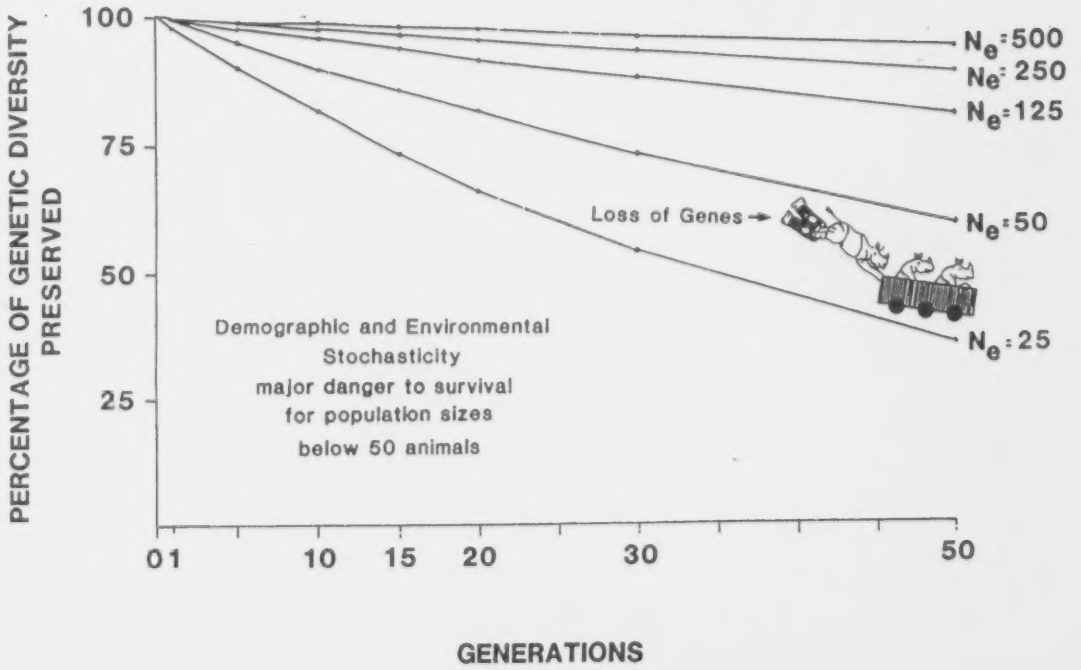


Figure 2

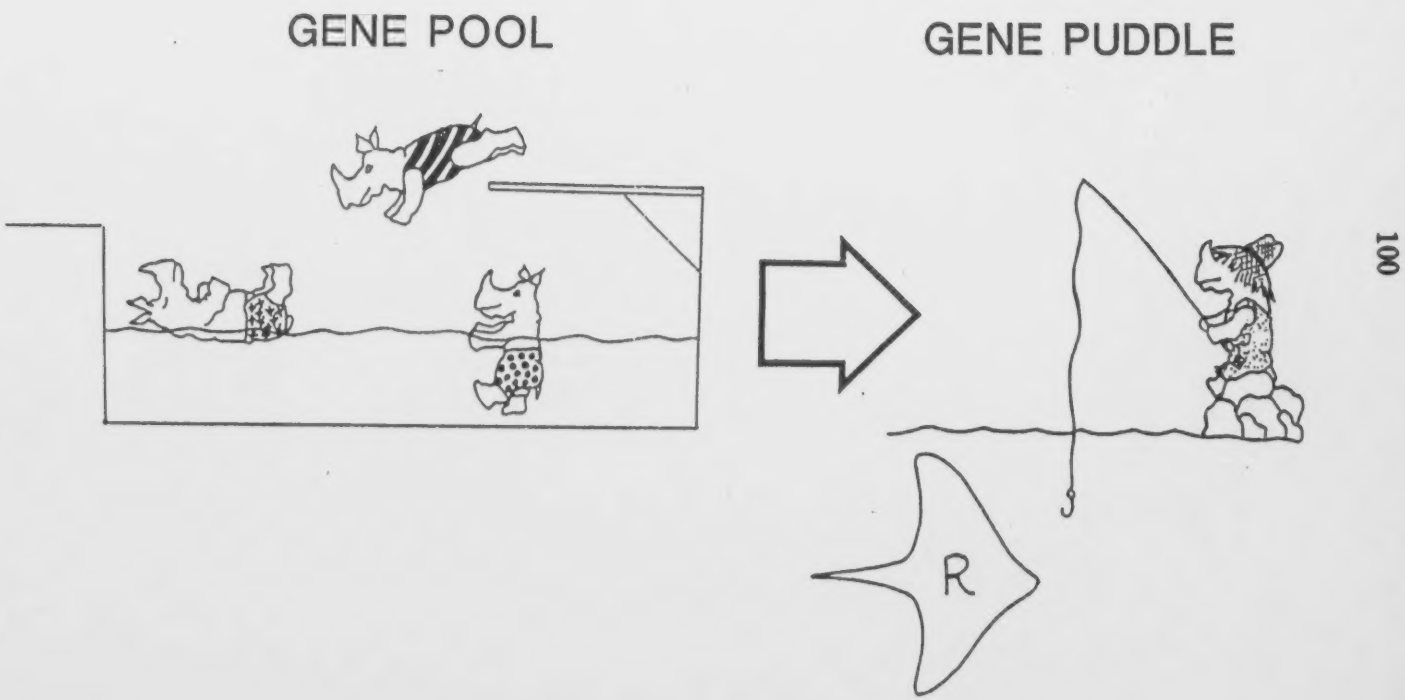


Figure 3

MANAGED MIGRATION AMONG POPULATIONS OF RHINOS

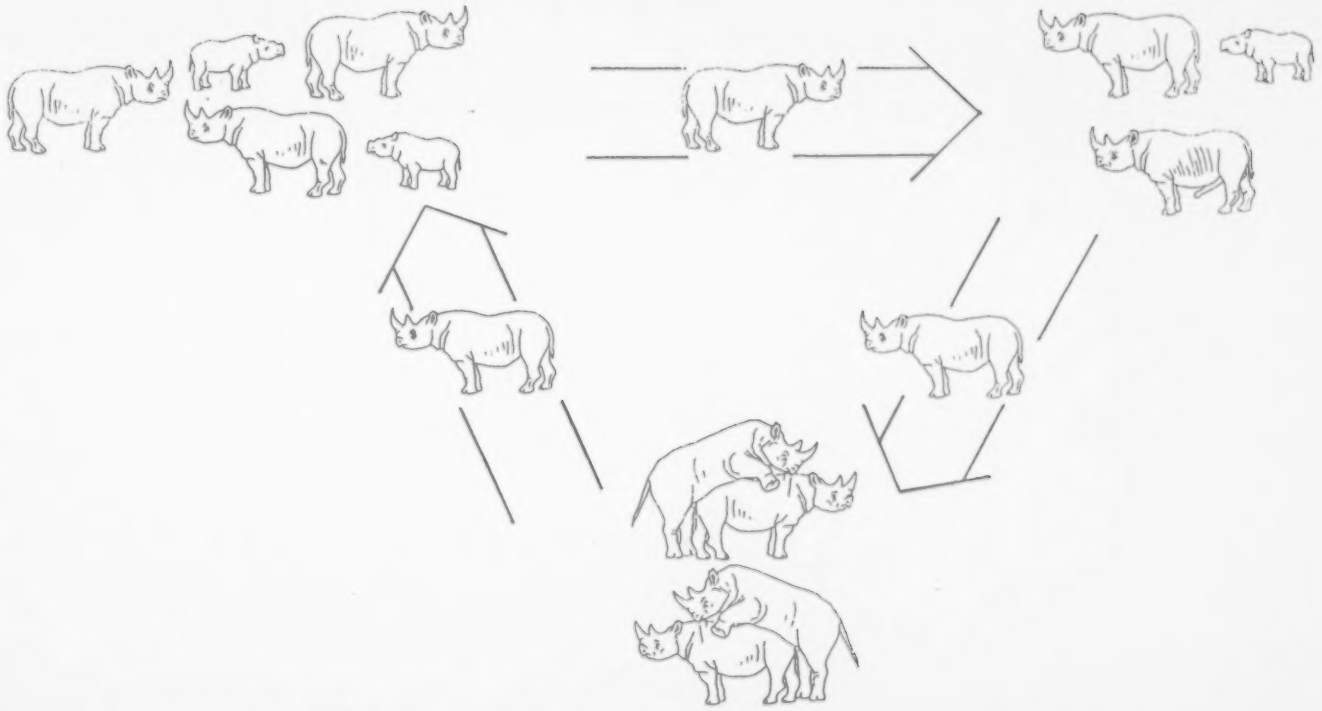
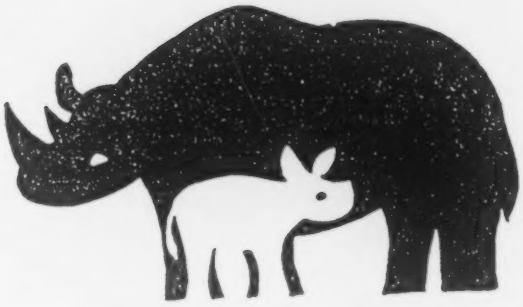


Figure 4



SPECIES SURVIVAL PLAN

Many endangered animals in our care may soon be extinct in the wild. Captive breeding programs may be their only hope for survival.

When you see this symbol at an exhibit, you know our staff is cooperating with zoos and aquariums throughout North America to breed and manage these animals. Species Survival Plans, coordinated by the American Association of Zoological Parks and Aquariums, are attempting to maintain as many different bloodlines as possible, with a mix of ages and sexes, to ensure healthy, vigorous animals to breed now and in the future.

If and when the world's natural habitats can be secured or restored, descendants of these animals will repopulate the wild.

(For smaller sign):

We are making a special effort to save this highly endangered species in cooperation with the American Association of Zoological Parks and Aquariums.

Figure 5

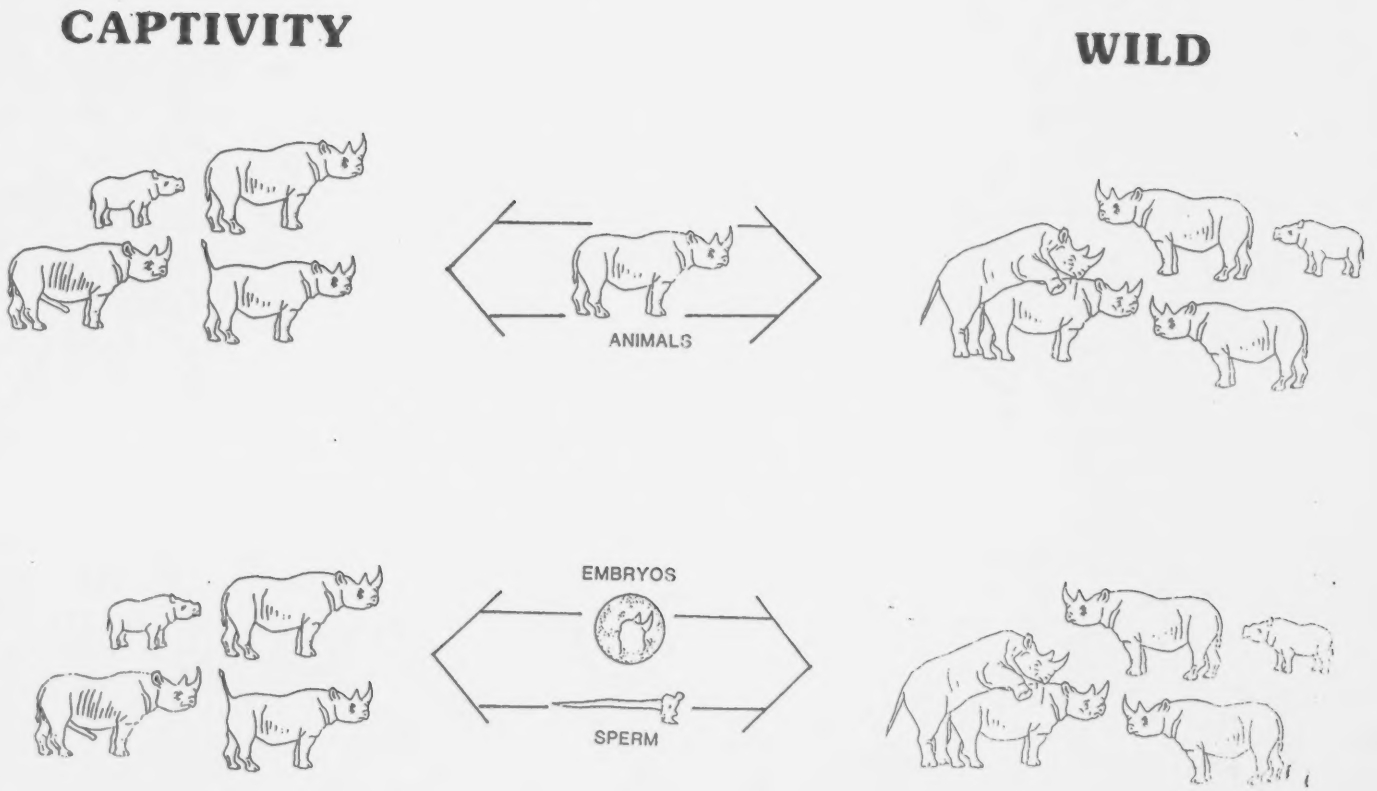


Table 1

RHINOS IN THE WILD

SPECIES	NUMBER
Black	3500
White	3500
Indian	2000
Sumatran	900
Javan	50
Total	9950

Table 2

RHINOS IN CAPTIVITY

SPECIES	NORTH AMERICAN SSP	WORLD
Black	69	150
White	143	450
Indian	33	90
Sumatran	0	14
Javan	0	0
Total	245	704

Table 3

CAPTIVE MVP OBJECTIVES FOR RHINO

SPECIES	NORTH AMERICA	WORLD
Black	150	300
White	100-150	200-300
Indian	75	150
Sumatran	75	150
Javan	75	150
Total	475-525	950-1050

Mr. SCHEUER. Dr. Douglas-Hamilton? Dr. Douglas-Hamilton, we understand you're under some time pressure, so why don't I recognize you now and if I have a question or two, I'll ask them of you so that you can go about your business. We'll recognize you for five minutes and any full statement that you wish to prepare will be printed in the record and I'll have a question or two for you, so please proceed.

Dr. DOUGLAS-HAMILTON. Thank you very much, Mr. Chairman. I wasn't expecting to testify before this committee, but it's a great honor. I'm only peripherally involved with rhinos and my colleagues know much more about them than I do but I am associated with one small project in Kenya which is a success story. It's on one of the private ranches up in the Lake Kipi area and it's a ranch of some 96,000 acres and there are still 47 rhinos that live there.

It's private land and the owner has been dedicated to conservation and has an excellent manager who runs not only all his 5,000 cattle, but also handles the anti-poaching at the same time. In a way, it's a bit of a model because it's probably the last unfenced population in Kenya which is safe and it's safe because of the quality of the anti-poaching that goes on there.

Part of——

Mr. SCHEUER. Can you tell us something about that quality? What is it that makes anti-poaching programs successful?

Dr. DOUGLAS-HAMILTON [continuing]. I would say it's principally a man, a man who's in charge, who knows exactly what he's doing, who's a good leader and who's developed a superb intelligence network that informs him of where the poachers are and who they are before they come in. Also, he's good at leading his men. If any of them turn bad, he spots it and gets rid of them and he recruits people who follow him and do their work properly. Under private management, it also has superb communications and they're well-equipped with radios. They don't have an airplane, they do everything on foot and it's very thick bush. The name of the organization that runs it is the Gallman Memorial Foundation. They aim to develop the land both for agriculture ranching and wildlife conservation in harmony on the same piece of land.

The ideal is to have a balanced approach to the ecosystem and to develop various models of excellence which perhaps can be used for extension work outside. Later, Mr. Dyer has a very similar thing. He'll be telling you about that. I'd also like to say that of course, in this morning's hearings, we heard about how the elephant is following the rhino in its footsteps. Again, an animal with a very valuable trophy is being persecuted and numbers are rapidly decreasing in most parts of the continent.

I'm much more involved with elephants and I think we have the same crucial issue in which the rhino campaign has been successful. The attention of governments has to be engaged as to the seriousness of the threats to elephants and if the African governments realize what a threat there is to the elephants, so should the donor agencies, and aid should be directed toward elephant conservation. I was very glad to hear the testimony of Mr. Nduku that they were having success in the anti-poaching to quite a degree with the rhinos and he identified the middlemen who need to be eliminated.

It's the same with the ivory trade, it's the middlemen again who are perhaps the principal threat and the weakest link in the chain of ivory from poacher to ultimate buyer.

We've been discussing this morning different strategies for controlling the trade which range from improving the CITES quota system to outright bans and although there isn't complete agreement, everybody agrees that the overall volume of the trade has to come down if the elephant is not to sink down to completely insignificant numbers.

A final point I'd like to come to is, you mentioned various organizations and questioned could they help, like World Bank and OAU. The EEC have been very helpful with respect to elephant conservation in Uganda in the past and recently they have become involved in Kenya in supporting an elephant survey. I have an article here which I would like to submit for the record entitled "EEC Support Elephant Conservation."

Mr. SCHEUER. For your information, I'm going to be in Strasbourg the week after next to address the European Parliament. If there were anything that I could accomplish there with the EEC, I'd be happy to chat with you about it.

Dr. DOUGLAS-HAMILTON. That would be a very good idea.

Mr. SCHEUER. Okay, please proceed.

Dr. DOUGLAS-HAMILTON. Finally, I'd like to state a personal belief which is that we will need very soon a "Save the Elephants Campaign" similar to the "Save the Rhino Campaign." The elephant is not at all as endangered as the rhino, will not be for some time, but if its numbers continue to go down, we could see the destruction of one of Africa's principal wildlife resources for no good reason.

It could descend to numbers which become insignificant from any point of view and I personally believe that people in the buying markets of the world have got to realize that when they buy ivory, they are supporting that market that is causing the elephants to decrease.

My personal belief is that we should not buy, sell, or wear ivory. Thank you, Mr. Chairman.

[The prepared statement of Dr. Douglas-Hamilton follows:]

EC SUPPORTS ELEPHANT CONSERVATION

The African elephant is in danger. It is a fact that this splendid mammal will soon find itself among the endangered species in Africa, unless some drastic measures are adopted in order to prevent such disaster.

This was first realized by the Kenyan Government in 1978 when a total ban on private ivory trading was implemented in this country. However, as it turned out, the ban did not have the necessary effect, since the now illegal ivory trading continued concurrently with the increase in the price of ivory. This price increase is a chain reaction ending with the poacher, who is therefore encouraged to continue his slaughtering of elephants.

Accordingly an initial step towards curbing the illegal trade was taken when African governments agreed to limit ivory exports to sustainable quotas under the CITES Agreement, based on known numbers of elephants and their trend. In 1986 Dr. Iain Douglas-Hamilton, was given the assignment of co-ordinating an African Elephant Database. This included counts of elephants in East Africa. At the request of Dr. Perez Olindo, director of WCMD, a count of the Tsavo Ecosystem was made the first priority.

The project in question is financed by the European Community (in cooperation with the World Wildlife Foundation and the United Nations Environmental Pro-

gramme) under a budget provision with reference to the European Community Action Programme for Environment, also covering the conservation of natural resources in developing countries.

This involvement by the EC in the conservation of the elephant should be seen in the light of the fact that it cannot be expected that the African countries alone, in their present economic situation, should assume responsibility for preserving this natural resource for the rest of the world.

The Tsavo count has now been completed, and the result has confirmed the worst prophecies. Thousands of elephants have been killed over the past 15 years. In the Tsavo Ecosystem alone the elephant population has declined from 35,000 in 1973 to 5,363 in 1987.

There is every reason to believe that this catastrophical decline in the elephant population is due to poaching for ivory. Obviously, the human population growth, if it continues at the current rate of 4 percent per annum, will eventually threaten the wildlife by the moving in on the protected areas by farmers, thus reducing the carrying capacity of the wildlife ranges. However, the decrease in number of elephants has been recorded in areas of low population density, which indicates that this human factor has had little influence on the acute situation of the elephant population in Kenya.

The recent elephant count in the Tsavo National Park has proven that it is high time for taking action in the attempt to rescue the elephant in Kenya. There are numerous reasons why the elephant should be saved from virtual extinction, and the population be allowed to grow. In 1987 the profit from the tourist industry in Kenya for the first time exceeded that of the coffee export. Playing a very important part of the tourist attractions of Kenya, the elephant, therefore, represents a valuable natural resource for the country, and its extinction would affect the balance of payment seriously.

In addition, by leaving the elephants to grow old, the natural mortality could eventually lead to a higher production of ivory, since older elephants produce more ivory than the young ones that are being killed at the present time.

This is not the first time the EC has been involved in wildlife conservation. In this connection, reference can be made to the measures which were so successfully adopted in Uganda in the beginning of the 1980s. During the 1970s thousands of elephants were killed by poachers in Uganda, until 1980 when the monitoring was resumed. At this stage the European Community was requested by the Ugandan Government to provide vehicles for the rangers in the National Parks, which request the Community readily complied with. In 1981 the Government presented the UNDP and the European Community with plans to safeguard the elephant as an economic resource which would one day make money for the country again through the game-viewing tourists. The Programme in question, co-financed by the UNDP, the EC, and the WWF, involved the creation of an anti-poaching force including a Chief Technical Adviser and an anti-poaching specialist. Furthermore additional vehicles and spares were provided, and an engineer was called in to rehabilitate the workshops. The rangers received training as well as food and clothes for themselves and their families. Small aircrafts for air surveillance formed an important part of the Programme in addition to radio equipment and the weapons which were necessary to match up with those of the poachers. This whole exercise resulted in a decrease in the number of elephants being poached.

The experience from Uganda shows that the elephant population can recover through the recognition by the Governments of East Africa and the donors, of the disastrous situation as well as the commitment on their part to do something about it.

Dr. Iain Douglas-Hamilton has a motto which should help devalue ivory, thus reducing the poaching: "Don't buy it, don't sell it, don't wear it".

Mr. SCHEUER.. Thank you very much, Dr. Douglas-Hamilton.

Perhaps I heard this in conversation before the hearing, that the rhino poachers are really not out there poaching for rhinos. They are poaching for elephants and the rhino is a casual opportunity that appears there, hiding in the bush and since the rhinos are there they take them, they shoot them.

Is there anything we can learn, is there anything that will help us in devising successful strategies for rhino poachers from the fact that the rhinos seem to be a secondary target?

Dr. DOUGLAS-HAMILTON. I think you've put your finger on one of the real problems that the rhinos will not be protected by rarity because the poachers, even when the rhinos become extremely rare, can still make an easy living off of the elephants and I don't see what you can do about that. It is true that many of the problems of anti-poaching are shared for the two species. They are the same people and the same methods are needed to deal with them.

Mr. SCHEUER. Dr. Douglas-Hamilton, we're very happy that you were able to come and chat with us and we are grateful for that and I may be in touch with you later, perhaps with Mrs. Stevens and to see if you have any suggestions as to anything that I could do, either in London or in Paris or in Strasbourg, okay, on this subject.

Thank you very, very much.

We will now go on to Dr. Eric Dinerstein, Visiting Scientist at the Smithsonian Institution. Please take five minutes, Dr. Dinerstein and proceed at will.

Dr. DINERSTEIN. Thank you.

I'd like to switch the focus for a few minutes from the black rhino to the three Asian species and in particular the greater one-horned rhinoceros, also known as the Indian rhinoceros in Nepal, where I have been directing a conservation program on the species for the last four years.

Essentially what I would like to do as well is provide a little auditing here of how biodiversity dollars have been spent to conserve this species in Nepal and how successful it's been.

It is somewhat ironic that Nepal is one of the poorest countries in the world, yet it has one of the most successful programs for rhino conservation anywhere. The money that was appropriated to us over the last two years through the biodiversity program has enabled us to do a population census of this species in the Chitwan National Park in Nepal over the last three years and this population has increased from only about between 60 and 80 individuals in the 1960s to between 380 and 400 animals at the current time.

Two years ago two rhinos were poached and last year we did not have a single rhino poached. The population has been increasing by two and a half percent a year.

We have also looked into some of the themes that Tom Foose stressed earlier on about the population genetics in managing small, isolated populations and one of the critical things that anyone is concerned about in such a situation is levels of inbreeding and how much of the gene pool is being preserved.

Only last week we got the startling news that from the 22 rhinos in which we sampled that the genetic variability in this isolated rhino population is as it approaches any other species that's been recorded, so it is extremely genetically diverse, which is much different than what we expected and very exciting news for future conservation.

Mr. SCHEUER. Now we were told—well, we're going to be informal, Claudine—if you want to interrupt, please do.

We were told before that 100 was about the minimum for any species that you can have and protect genetic diversity. Would that be true for a squirrel as well as for an elephant?

Dr. DINERSTEIN. Well, I think that a lot of that is based on the carrying through that it would be at least 100 animals is required.

Mr. SCHEUER. Now what you are telling us is that with a fifth of that you had adequate genetic diversity.

Dr. DINERSTEIN. Right, but it doesn't mean, for example, that you have—one important point that many people often don't understand and that is it doesn't mean that you have to have 100 animals right now but if the reserve or the area can support that many that that's what you are striving for.

Mr. SCHEUER. Okay, please proceed.

Dr. DINERSTEIN. However, we note that simply doing monitoring of rhinos inside the park we have almost all of the animals photographed and identified and they're being studied, is that we've addressed a number of critical problems outside. One major difference between conservation in Asia of rhinos and conservation in Africa is you have the problem of conflict over habitat use.

Surrounding Chitwan National Park where you have 400 rhinos are 60,000 people who rely on the park to meet their basic firewood and fodder needs and the long-term conservation of rhinos in Nepal and India, Indonesia, Malaysia, needs to address the human use of these people, so we use the other half of the money that we receive through biodiversity to set up forest nurseries and plantations to meet the firewood and fodder requirements of the people who live around the park. The idea is over the next few years to ring the area that has the highest density of rhinos with these plantations so that people can start growing their own firewood and fodder and not have to go into the park and disrupt the rhinos.

Another thing that has developed in the last three years is tourism and we've worked with some of the local hotels to encourage and develop tours and which has become a very good way of taking foreign dollars and putting it into the hands of local people who live on the edge of rhino reserves.

Finally, in this way we have also stressed relocation and in March of 1988 we had the first birth of a calf rhino that we moved—a population that we moved two years ago through the cooperation and work with the Smithsonian, the World Wildlife Fund and His Majesty's Government of Nepal.

However the reserve in Bardia where we moved rhinos still doesn't have a monitoring unit, doesn't even have a vehicle to follow this new population that was started there.

We have also received money to start projects on Javan rhinos and Sumatran rhinos, where the situation is much more dire. There's only perhaps 50 Javan rhinos left in the world in one reserve.

I'd like to stop by saying that there's a need for continued surveillance and continued relocation efforts for these species. There is really no substitute for eternal vigilance. I'd also like to stress that I disagree with a statement made earlier about the amount of

money needed for conservation work. It is really beyond the means of the Government of Nepal, which is a very poor country, to meet some of these requirements and $200,000 could easily be programmed for the one-horned rhinoceros alone, which comes out to about $100 per rhino, which is really less than what most Americans spend when they go out and buy a pet cocker spaniel.

Thank you.

[The prepared statement of Dr. Dinerstein follows:]

TESTIMONY FROM:

Dr. Eric Dinerstein Principal Investigator Smithsonian/Nepal Terai Ecology Project Conservation and Research Center National Zoological Park Front Royal, Va. 22630

Of the three species of Asian rhinoceros, the Greater One-Horned Rhinoceros, or Indian Rhinoceros as it is also known, stands the best chance of rapid recovery from the brink of extinction. For the last 4 years the Greater One-Horned Rhinoceros has been the subject of study by the Smithsonian Institution's Nepal Terai Ecology Project. More recently, we have received grants from USAID and World Wildlife Fund (WWF) supporting field work and conservation activities aimed at saving rhinos in Nepal. Here, I report on how these funds have been spent.

Each year in Royal Chitwan National Park, we have conducted a census of the rhino population. Funds for the 1987-8 census came from a grant from USAID to WWF. This year's census revealed that the rhino population now numbers between 380-400 animals, and that annual recruitment was about 2.5%. Over the past 14 years the rhino population in Chitwan has increased at an average rate of 2% per year. In 1986, we lost 2 animals to poachers but last year not a single animal was poached. Funding from USAID WWF and continuing Smithsonian support also enabled us to look at the genetic variability within the Chitwan population, a critical aspect of the ecology of an endangered species that has been reduced to low numbers and exists in isolation from other free-ranging populations. To our great surprise, we have discovered that levels of genetic variability in the Chitwan population approach the highest levels recorded for wild mammals. This finding is particularly heartening for future efforts to relocate rhinos using small numbers from Chitwan as the founder group.

The same USAID grant provided for funds to address another conservation problem- the firewood and fodder crisis in the Chitwan valley. Villagers who live on the edge of the park enter the area containing the highest densities of rhinos in order to gather firewood and cut grass or leaves for cattle fodder. Many have no recourse because most of the buffer forests around Chitwan have been heavily degraded. We began what we hope will be a long-term project that will address local resource needs. We provided a local farmer an electric fence to keep rhinoceros out of his fields. Inside the fence, the farmer developed a tree nursery for fodder and firewood trees. The seedlings will be distributed to other farmers in the village who will raise them on their own property. Current production this year will be 25,000 seedlings and next year this figure should increase to five times that amount with two more nurseries coming into production. Once local farmers learn the value of tree conservation on their own property, they will be more amenable to a community forestry program.

Even if the rhino population continues to grow in Chitwan and the needs of the locals for firewood and fodder can be met, the future of rhinoceros in Nepal is still in doubt unless a second population can be established in another reserve. The threat of an epidemic or a break down in law and order could spell rapid decline for rhinos in Chitwan. Realizing this problem, His Majesty's Government of Nepal, with assistance from WWF and Smithsonian, relocated 13 animals to the Royal Bardia Wildlife Reserve in western Nepal. In March of 1987, one of the females moved to Bardia gave birth and other births are expected soon.

A threat to this new population is a proposed dam to be constructed upriver from the most productive wildlife habitat in Nepal, the flood plain islands of the Karnali River. It is on these islands that the new population of rhinos has become established. We believe that this project should not be undertaken for both economic and ecological reasons. Because of the uncertainty of the dam proposal, Nepali officials have recommended future rhino relocations to be switched to the Babai River valley, also in Bardia. However, release of rhinos into the area would require the construction of an access road that would cost roughly $10,000, a sum beyond the means of the National Parks Dept. or conservation organizations in Nepal. The continued relocation of rhinos to Bardia has in our opinion the highest priority for conservation of this species.

In Assam, India, other development projects, a highway and a proposed rail line, threaten the integrity of the Kaziranga Wildlife Reserve, home to the largest population of Greater One-Horned Rhinoceros in the world. Again, we request that this subcommittee look into these projects and their impact on rhino conservation.

Populations of Sumatran Rhinoceros and Javan rhinoceros are in worse shape than Greater One-Horned Rhinoceros. The largest population of Sumatran rhinos may number no more than 100 individuals and the rest are scattered around Peninsular Malaysia, Sabah, Sarawak, and Sumatra. A new project funded by USAID and WWF, funded via the Biodiversity program, will enable biologists to conduct surveys of Sumatran rhinoceros numbers in several Indonesian reserves. Perhaps no more than 50 Javan rhinos survive in a single reserve in western Java. The same grant will also permit biologists to census this most rare species of rhinoceros.

For all species and all populations of rhinoceros, there is no substitute for vigilance and continued monitoring. These animals are the treasures of our evolutionary museum. If we do not want these living museum pieces to be stolen from us, we have to keep up the inventory.

Mr. SCHEUER. Thank you very much, Dr. Dinerstein and now we will hear from Dr. Ryder, please take five minutes and chat with us.

Dr. RYDER. Thank you very much, Mr. Chairman. I think I will try to just continue a little bit with some of the remarks that Dr. Dinerstein made and again in coordination with some of the other panel members. What I will really try to focus on here are some of the genetic issues that must be dealt with for the long term survival of a species like the rhinoceros and the biological diversity that they represent—and the role of research activities in providing insights and shedding light on unanswered questions of significance to meeting these conservation and biological diversity goals.

We have heard and I know this committee has become very familiar with the numbers about the population decline and the population fragmentation of rhinos in the wild and therefore the need to translocate animals and to consolidate populations.

The consequences of not moving these populations are dire, but what might the consequences of moving these populations be?

Zoos have experience with this kind of activity because they establish collections essentially by translocation of animals from the wild, at least initially and there we have learned some lessons and it has been learned also in the wild that at times one can create situations that are inappropriate so that animals are not adapted to their environment or the worst case of all is to produce offspring that in fact can't themselves reproduce—in other words sterile hybrids.

Most vertebrate species show some regional genetic variations and that is recognized in the Endangered Species Act of the United States. It does not focus on the species but on the subspecies and populations. The fact is that most endangered species are not well studied genetically, especially prior to their decline which produces their endangered status, so we are often working from a point of ignorance and that is, in fact, what the case has been with the rhinoceros.

What I would like to do very briefly is just tell you some of the work that's been undertaken in genetics of rhinoceroses in the last couple of years that produced unanticipated findings that are I think of some potential or obvious importance for the management of their situation in captivity in the wild and for conservation of the biological diversity they represent.

We heard about the Northern white rhinoceros, a population now of some 3,200 animals in the south and now only 29 of the northern subspecies. There are 10 in captivity in Czechoslovakia, 1 aged male in the zoo at San Diego and the one animal in the Khartoum zoo, 17 in Garamba as far as I know, the most recent information I have—17 animals in Garamba National Park in Zaire.

How much effort goes into saving a population of 29 that is the same species of the population of 3200? You need to know genetically how distinct they are and how different they are and we have had a look at that and just briefly we can distinguish them genetically. There is no doubt about it. It is my—we are still very much in the middle of this work but if I can be allowed to present just sort of a preliminary, in progress report, these animals are quite

well distinguished genetically, much more so than in one measure of looking at them than are the black rhinoceros subspecies.

We study their chromosomes, which are important predictors of whether potential sterility could occur and I must say that only one male northern white rhinoceros has had his chromosomes studied. There is a different number of chromosomes from any female white rhinoceros or from any other white rhinoceros studied. With a sample of one, I can't tell you what this means, whether he is a mutant or whatever but this is something we are going to have to come to grips with as these animals are managed.

The black rhinoceroses. We can distinguish on the basis of their chromosomal morphology whether a black rhinoceros comes from Zimbabwe or whether it comes from East Africa. I don't ever have to see the rhinoceros. What this finding tells me as a geneticist is that even though they were distributed as a contiguous population they have not had the kind of genetic exchange of gene flow that would tend to make them be uniform over their range. This has implications for managing our biological diversity in this species and others because if you really want to preserve the biological diversity of a species, you have to capture the regional variation in that and you have to make sure that in so doing you are putting animals together that actually represent something that is adapted for their environment.

We have done studies on another species, dik-diks, in East Africa that are in the same area that are alleged to be the same thing and yet we find out they are different chromosomal races. They somehow sort themselves out. Zoologists haven't done this yet, but in zoos they have been mixed together inadvertently and the offspring males produced are sterile. That is why we are proactive in the Sumatran rhino program. We are doing this before we reach a situation of having the parental generation be too old to reproduce.

Really the point here is that there is a role of technology and research activities in addressing these concerns of biological diversity and those extend right down to the rhinoceros. I have told you of these studies that are in progress with rhinos and really only additional studies will allow us to complete the picture and understand the significance of what we have observed so far.

These studies are difficult to support. A grant was obtained from the Institute of Museum Services, one of the few Federal agencies that supports conservation—you can use that word in telling them what you are going to do. That has ended but there are organizations, private organizations and zoological parks that stay in both public and non-profit status that fund research that's necessary of this kind, but levels are very low in comparison to the size of the problems that must be addressed in order to prevent extinctions and sustain ecosystems and link the technology that exists for the ex situ activities with that that's needing to be applied to the in situ situations like I think that we are seeing what is going to be happening with rhinoceroses and may indeed be happening with elephants.

I think funding research does a number of things. It helps provide data that answer questions that are of immediate concern. It also beyond that evidences concern and commitment in a way that

may be feasible to do, whereas other actions are not in the political milieu.

The other thing is that also carefully designed research projects can help transfer technology and provide income to governments that have the diversity that we are interested in conserving. I know that there is interest in some East African countries in carrying on this type of research and they would very much like to get some help in having that technology transferred to their facilities.

I appreciate your time very much and the opportunity to say these things. I think already the activities of the Subcommittee have been noticed, believe me, in the conservation community and it is very rewarding to know that a Congressional Sub-Committee is taking interest in the plight of the rhinoceros and we are also very encouraged by the work that has been done on the biodiversity bill.

The last thing I might just say is something that this Committee is really leading the way as far as I can see in saying at the Congressional level and that is that the future existence of the rhinos really depends on people. We can neglect to act and the likelihood will be that we will see a series of extinctions, or we can invest in efforts and the resources and the research to protect populations and see that they are managed until they increase and thereby prevent them from what is going to happen to some many other large mammal species.

Thank you very much.

[The prepared statement of Dr. Ryder follows:]

Before the Subcommittee on Natural Resources,
Agriculture Research and Environment
of the
Committee on Science and Technology
House of Representatives of the United States

Hearings on Conservation of the Endangered Rhinoceros

Statement of Dr. Oliver A. Ryder, geneticist
Center for Reproduction of Endangered Species
Zoological Society of San Diego

Mr. Chairman and Members of the Subcommittee:

Rhinoceroses are charismatic creatures that know only one great enemy, the species, Homo sapiens. Although the occasional young rhino may be taken by non-human predators, the adult rhinoceros could, until recently, anticipate dying of old age. The recent revision in outlook for the rhino is due to the actions of mankind.

Rhinoceroses represent a quite ancient family of animals. The first ancestors of today's rhinos were present 40 million years ago, about the same time that the ancestors of modern horses roamed as fox-sized animals in shrub-filled habitat. It is estimated that perhaps 120 species of rhinoceroses have occupied habitats in Africa and Asia since their divergence from their distant cousins, the tapirs. Today, there are only five species remaining, all of which are endangered and, quite literally, facing extinction. Thus, it is a long lineage of unique creatures whose only hope for survival now lies with the species that is, simultaneously, their most dangerous enemy. Humans can save the rhinoceroses as a unique family of herbivores or they can acquiesce in their final extirpation. Constructive human intervention requires the cessation of poaching. In addition, research activities also have a vital role to play in bringing together the knowledge necessary to ensure the existence of viable rhino populations.

Many species are becoming extinct or threatened with extinction because of loss of suitable environments for survival, primarily at the agency of man. This is especially true for the species-rich tropics but also for temperate

North America. The black-footed ferret, the San Joaquin kit fox, and many smaller mammals fit this category. Other animal species, notably bird species, are being eliminated because of organisms introduced by humans, such as snakes on Guam or mongooses on Hawaii. Relatively few species have been simply hunted to extinction like the zebra-like quagga, the dodo, or the California grizzly bear. Human hunting, primarily for horn, and not destruction of habitat pushes rhinos toward extinction today. Certainly though, habitat quality is of great importance for the future of rhinos. The destruction of tropical moist forests in Indonesia, Malaysia as well as in other Asian countries is of concern for rhinoceros conservation.

However, the greatest immediate threats to rhino species are direct predation by humans and the reduction of populations to levels from which the may not be able to recover. This issue will become increasingly important as rhino populations continue to decline. It is extremely unlikely that hook-lipped, square-lipped, Indian or even Sumatran rhinos will go extinct in the next thirty years. These creatures are long-lived and small numbers are protected in zoos and wildlife parks. However, the existence of living animals does not imply that extinction is not imminent or inevitable. Biological populations may fall below a threshold for long-term viability. Population viability is in largest part a matter of numbers of individuals. The determination of the number of individuals representing the threshold of viability for any given species poses great difficulties because of scientific uncertainties and the role of chance events.

Nonetheless, what is clear for rhinos is that they are rapidly approaching the danger point for their future survival, even if the census population sizes were immediately stabilized. The black rhinoceros of Africa, and its seven million-year distant kin, the northern white rhinoceros have had their population numbers decline precipitously and, in addition, become increasingly fragmented. Population fragmentation means that, in the extreme, individuals cannot find mates or that, if they do, they may be close relatives. The northern white rhinoceros is a dramatiic example: only seventeen individuals are known to remain within former habitat. All are located in Garamba National Park in Zaire. An additional ten reside in a zoo in Czechoslovakia, one aged male lives at the San Diego Wild Animal Park

and another old male is in the Khartoum zoo in Sudan. To a geneticist, this form of rhino faces the same type of challenge as does the California condor or the black-footed ferret: can such a small population rebound and prosper or will increasingly skewed sex ratios, a local epidemic, other chance events, or inbreeding-associated difficulties result in a decline toward extinction that might have been avoided by having started with just a few more animals?

Rhinoceroses are unique products of evolution. However, many aspects of the biology of these creatures that are of fundamental importance for enlightened intervention on their behalf are largely unstudied. For example, chromosomal studies on rhinoceroses are just receiving detailed attention. During the past two years we have begun to study the differences between the named subspecies of African rhinoceros and have recently begun, on behalf of the American Association of Zoological Parks and Aquaria (AAZPA), to conduct similar studies on Sumatran rhinoceroses.

Our studies of hook-lipped (black) rhinoceroses have involved examining the chromosomes of 22 individuals to date. The vast majority of the animals we have studied were imported from Kenya or were born in zoos to animals imported from Kenya. However, we have examined the chromosomes of two hook-lipped rhinos that were of Zimbabwe origin. The two groups of rhinos are clearly distinguishable based on the morphology of their chromosomal complements, although both groups have 84 chromosomes per diploid cell. It is not entirely clear whether these two groups correspond to named subspecies (although both animals of Zimbabwe origin would be ascribed to a single subspecies, Diceros bicornis minor). It is also not clear whether reproductive difficulties might ensue should individuals with the differing karyotypes interbreed. What is clear is that in their natural environment, over millennia there has not been sufficient dispersal and migration of individuals to create one big genetically homogeneous population of black rhinos. There is locally distinct variation of a sort recognized to be of significance in the evolution of mammals that is only now beginning to be identified.

Also recently, we discovered that the number of chromosomes possessed by the southern white rhino had been incorrectly stated in the scientific

literature. In the last few months we have found that the only male Northern white rhinoceros to be studied chromosomally has a different number of chromosomes from any of the male Southern white rhinoceroses ever studied and is also apparently different from the females of his same race or subspecies.

Molecular genetic studies involving comparison of mitochondrial DNAs of rhinoceroses and other endangered species are now being conducted in our laboratory and elsewhere in efforts to apply powerful new technologies to questions of significance to the conservation of biological diversity. We are able to distinguish the mitochondrial DNA molecules of the Northern and Southern forms of white rhinoceros utilizing this technology. These kind of studies ultimately contribute to the understanding of the evolutionary position of these forms, aid in the identification of unknown animals, and help provide a rationale for the management of small populations in captivity and in the wild.

We are coming to suspect that there are other aspects of the evolution of these animals that may be rather unique and from which we may draw lessons about the evolution of mammals and, indeed, of all life. Over time the genetic make-up of all organisms undergoes change. The fossil record displays this most dramatically through the evolution of new species. Within mammals, rates of change of DNA have been found to vary between primates and rodents, perhaps by as much as three to five-fold. Rhinos have been around for a long time and, based on evidence to date, may have rather low rates of change of their DNA as compared to rodents or primates. An understanding of the hitherto unappreciated potential for variation in rates of basic evolutionary processes requires that specimens be available for study. What can one say about the future of rhinoceros genetic studies?

As populations of rhinos shrink, considerations of constructive intervention produce a mandate for some form of management, even for free-ranging populations of rhinos. From the perspective of the conservation of gene pool resources, as populations of rhinos living free and undisturbed in their natural environment become increasingly small, the distinction between wild populations and zoo populations becomes increasingly blurred. The

technology that has been developed to conserve the gene pools of species through genetic management may be usefully applied to rhinos not just in zoos but in wildlife parks and nature reserves.

Genetics research involving rhinoceroses requires links between institutions at the national level (e.g., AAZPA) and internationally. At the request of the International Union for Conservation of Nature and Natural Resources (IUCN) the Zoological Society of San Diego sent me to the Dvur Kralove zoo in northern Czechoslovakia in order to assist in the collection of samples for genetic analysis from their captive population of ten Northern white rhinos, return with them to my laboratory at the San Diego Zoo and conduct a variety of genetic investigations in order to shed light on their genetic differentiation from their southern conspecifics. The African Elephant and Rhino Specialist Group (AERSG) of IUCN has played a leading role in the coordination of research activities necessary for conservation of these species.

We are encouraged that research activities including traditional and new technologies are helping provide significant new information. Nonetheless, only additional studies will help us to understand the basis and significance of the differences we have so recently observed among geographic forms of African rhinoceroses.

Research activities of this type are currently difficult to support. Although zoological parks and private organizations are supporting research in conservation biology, the available resources are far surpassed by tasks at hand. There is no National Endowment for the biological diversity that enriches humankind esthetically and economically. Grants awarded by Federal agencies such as the National Science Foundation do support research in conservation biology, provided that they can be justified on other means and compete successfully with other proposals without regard to their conservation merit.

The present generation of humans will determine what future the rhinoceroses will have. Neglect to act could predictably lead to a series of extinctions. Protection without a period of population management might

forestall but not necessarily avoid future genetic catastrophe and extinction. Protection of populations in the wild and plans for management of their genetic resources until population sizes increase and habitat is once more secure are urgently needed.

Mr. Chairman, I appreciate the opportunity to submit these remarks on the important issue of the loss of species for which your subcommittee has chosen the rhinoceros as a significant example. I would also like to express my appreciation and admiration to Rhino Rescue USA for the positive role they are playing through their organization is playing in efforts to ensure the future the rhinoceros.

prepared
16 June 1988

Mr. SCHEUER. Thank you very much, Dr. Ryder, and now Mr. Tony Dyer.

Mr. DYER. Thank you, Mr. Chairman, for this wonderful opportunity. I must introduce myself a little bit because I have some very strong ideas and I have to give you a reason why I have such strong ideas. I was born in Kenya 62 years ago. I've been quite closely involved in conservation since 1952. In about 1962, I initiated the moving of white rhinos from the West Nile province of Uganda to the Murchison Falls Park.

They flourished there. They were later exterminated by Idi Amin's men. More recently, I've been a director and partner of the 1.5 million acre Galana Ranch. I'm haunted by the memory of our wildlife manager Ken Clark who was killed by rhino poachers in 1977.

Since then, on Galana Ranch, we've lost an estimated 250 rhinos and over 90 percent of our 4,000 elephants. I've been asked by Rhino Rescue, Inc. to be prepared to answer some of the following questions. What problems and obstacles have we encountered since rhino sanctuaries have been started by private enterprise. My second son is the manager of the Ngare Sirigon rhino sanctuary, which is 10,000 acres and is immediately adjacent to my own home.

The first problem he ran into was the abandonment of new-born calves by mothers immediately after birth. They did not lactate and this was suspected to be due to effects of drugs used during their recent capture. One calf died. One calf was successfully hand-reared and since then three calves have been normally reared by their mothers. It was not possible at the time of capture to know if a cow is in calf. The conclusion is that only young and definitely-not-in-calf females should be tranquilized in the future.

The second conclusion we have come to is we've observed fatal territorial fighting between a dominant bull and a junior rival bull. Five thousand acres in this sanctuary has proved to be too small a territory. This factor I'm sure will vary according to different kinds of country. This sanctuary has now been doubled to 10,000 acres and that dominant bull's been moved to a new fenced area in the Nmeru Park.

From our experience, we've concluded that the translocation of rhinos must be supervised by the most highly experienced veterinarians available. This experience must be specific to rhinos and there are only three such men I know of in Africa. Their services must be retained and their experience must be handed on to others.

The tranquilizing of a wild rhino is no easy job. The ideal man for such a job is a person with considerable hunting and veterinary experience who is sufficiently motivated to risk his life with each rhino captured. There is a man now in Kenya called Dr. Dieter Rottcher. His future is in jeopardy because there is no one to fund his future employment. The German government has ceased to fund him and unless we can somehow or other fund his employment in the future, we're going to lose him and it would be a tragedy to conservation in Kenya.

The second question I was asked to answer was what information on the rhino and its habitat would enable more effective sanctuary management. Where do we see a need for future research?

I feel we need to follow-up the habitat surveys already carried out on the Ngare Sirigon sanctuary. We want more information on rhino feeding habits in order to propagate and plant rhino food plants in order to increase the carrying capacity of our sanctuaries. We have to plan ahead to be able to farm rhinos and restrict conditions in times of extended drought. In one drought in the past, an estimated 2,000 rhinos died of starvation in the Tsavo National Park. This is a hearsay figure but certainly a large number of rhinos died.

What difficulties have we encountered in dealing with the plethora of government and private agencies funding rhino conservation work? How would we suggest they coordinate their efforts?

We consider that as many supporting bodies as possible are needed to achieve the continued momentum. They should come from a wide spectrum of potential supporters. No one group can keep up the pace indefinitely. There are private individuals giving freely of their time, money and vitality.

All these gifts are finite. We believe the private individuals and private enterprise can and have done the job quicker and more economically than public bodies. In the case of the Nakuru National Park the vitality and private enterprise of two individuals raised the funds and built the fence around 34,000 acres inside of two years.

Rhino Rescue Britain has its hands full maintaining the management of this one fence. The Rhino Ark, a brand new conservation organization, has picked up the challenge of fencing the treetop salient to the Aberdare Park. This project urgently needs funding and quite a considerable amount of funding. The Eden Trust and others are financing two other rhino sanctuary areas in Kenya.

Four private individual sanctuaries have and are being developed for a cost of about $4 million plus recurrent expenditures. All of this is happening simultaneously. No one organization could achieve this kind of success.

What role do we feel the U.S. government should play in aiding rhino conservation efforts, in particular, its role in aiding private and public sanctuaries? We suggest that where possible, the U.S. government should give matching grants for U.S.-raised money. There is I know, in the World Bank, a very constructive plan in the pipeline for conservation management in Kenya. It would be wonderful if the United States government could give all the moral support it can to this plan.

The last question was how has the local population reacted towards or become involved in our conservation efforts? The African peasant, peasant farmer, man living in the bush, finds the rhino a dangerous competitor to his environment. To many others, it's meat and now, the horns of one rhino represent more than he can earn in a year or even a lifetime. There is a growing belief that rhinos can demonstrate that they mean money in tourism.

There is a move afoot in Kenya to seek to return rhinos to certain selected areas, particularly high mountain range-tops that are traditional grazing grounds for clans or families. In very simple terms, if one family or clan managed, say 10 rhinos in their mountain grazing and were paid 10,000 Kenya shillings which is $588 for

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each rhino for each year, this would be a bargain for conservation and yet would be a fortune to that family or clan.

What future do you see for land use between cattle and rhinos. On Ngare Sirigon, our whole philosophy is based on the principle of multiple land use. At Ngare Sirigon, cattle ranching potential has been considerably increased to close to its optimum. There is no significant competition between cattle and rhinos. Other wild animals are also flourishing within that sanctuary. The most important benefit to this is political. The land is being farmed for practical human needs and is not merely a private individual indulgence.

The prospects of long-term success for rhino sanctuaries are that they're already a demonstrated success. In some cases, they've been successful since they started 20 years ago. In the case of Sonyo, the success is so great that there is now a serious over-population problem.

We must look however, to the long-term future. The Aberdare Park in Kenya is a forested mountain range of 189,000 acres. It's the only water catchment area for the city of Nairobi. Its boundaries have been established for over 25 years and its water catchment potential has a political clout that no mere poor wild animals will ever enjoy.

This wonderful area must be securely fenced and that fence must be properly maintained. Within that fence will survive all the major wild animal species of Kenya long after the rest of Kenya's parks and sanctuaries have been overwhelmed by human expansion. If the Aberdare Park can be made secure for the long-term future, then not only will the black rhino survive in the wild in the 21st century, but so also will east African elephant. Unless we act now, and urgently, both of these animals will be extinct in the wild within the next 11 years.

Please believe me, if we can save the rhino, we can also save the elephant. The end of the battle to save the rhino is actually in sight. The battle to save the elephant is close to being lost before we've even fought for this magnificent animal.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Dyer follows:]

STATEMENT OF
ANTHONY DYER

BEFORE THE
SUBCOMMITTEE ON NATURAL RESOURCES,
AGRICULTURE RESEARCH AND ENVIRONMENT
OF THE
COMMITTEE ON SCIENCE, SPACE AND
TECHNOLOGY

UNITED STATES HOUSE OF REPRESENTATIVES

June 22, 1988

My name is Anthony Dyer. I am a citizen of Kenya where I have lived since my birth there sixty-two years ago. I have been a hunter since boyhood, and was President of the East African Professional Hunters' Association from 1965 until 1977 when we disbanded that association after the closure of all hunting in Kenya. That association has a proud record in conservation and in 1939 it played a leading part in the founding of the National Parks of Kenya, Uganda, and the then Tanganyika. I personally initiated the moving of white rhinoceros from the West Nile Province of Uganda into the Murchison Falls National Park in 1960. They flourished there until they were exterminated by Idi Amin's men. I was the keynote speaker in Monte Carlo at a conference where we initiated a successful new approach to solving the problem of the rampant leopard skin trade. I have written one book and several articles about conservation in Africa.

I retired from professional hunting in 1961 and since then have been a cattle and sheep ranch manager. I have a very close relationship with the Ngare Sirigon Rhino Sanctuary as my son Francis Dyer is its manager, and the fence boundary of that sanctuary passes within five hundred yards of my home. I am on the management committee of the Rhino Ark and am a Patron of Rhino Rescue in Britain.

I am deeply grateful for this opportunity to be able to share my views and hopes with you.

The last five years have taught us the following lessons about rhino conservation:

- The properly funded and managed sanctuary has succeeded in breeding and protecting the black rhino

- We have concluded that we should not tranquilise and move females that are in calf as we risk losing the calf due to its mother not lactating.

- We have seen that 5,000 acres is probably too confined an area for a dominant free-ranging bull black rhino in the Ngare Sirigon area.

- A rhino can be artificially fed from the moment of birth using the methods developed by Daphne Sheldrick and carried out over a three year period by Anna Merz.

- Our fencing system has succeeded in its prime objective of keeping rhinos within the sanctuary.

- The monitoring system of the fence and the daily patrols along the fence have so far kept poachers away.

- The system of capture and translocation as practiced by Dr. Dietter Rottcher has worked well. We would like to be sure that his services will continue to be available to us. In this particular field there is no substitute for such experience.

- We need to know more about rhino feed requirements. There is always a risk of a massive die-off from starvation in restricted conditions in severe drought conditions.

- Some way must be found to ensure that private and public rhino sanctuaries can be maintained financially in the long-term.

Four private individuals have given over four million dollars to set up these private sanctuaries. Their combined annual recurrent costs are at least a quarter of a million dollars a year. Two more private people, John Street and Halvor Astrup, have made massive donations towards the now completed extension of the Ngare Sirigon Sanctuary. This private funding could stop. The results would be critical, and for the rhino, apocalyptic.

I would hope that the Subcommittee can recommend that the U.S. Government consider giving matching grants to all U.S.-raised donations. It is also hoped that there is a World Bank long-term management plan in the pipeline for assistance to conservation in Kenya. This plan needs all possible support. Without massive long-term assistance all the good work that has been done could be lost.

All that has been said in this statement is meaningless unless the trade in rhino horn can be stopped. While rhino horn has a high market value, poaching will continue. As the easily available rhino are finished off the war will be taken into the sanctuaries, and the odds are in favor of the poachers.

We must remember that we are trying to impose foreign ideas of conservation onto people who may not share our views. To many the rhino is a dangerous, unwanted animal. To others the rhino is food for hungry mouths. The horns of one rhino are worth a year's, or even a life-time's income to many Africans. There are plans to try to create a way in which families or clans who possess the grazing rights to particular areas could be rewarded for their protection of rhinos within their charge. A payment of ten thousand shillings ($588 U.S.) a year for each rhino retained by that clan would be a fortune to them and it would be a bargain

for conservation. The cost of managing and protecting rhinos in this manner would be about one twentieth of the cost of keeping them in a sanctuary.

There are large areas within the nomadic tribal areas in Kenya where this plan could work. One tribal chief is already possibly interested. His tribe could soon also benefit from tourism. It is said that there is no policeman as good as a reformed thief, and in this instance the "territorial imperative" would play a big part.

Multiple land use is an important factor in rhino management. There is little competition between cattle and the black rhino. It has been proved that a fenced rhino sanctuary like the Ngare Sirigon is also a good cattle ranch. The same fencing and water development and human management benefits both animals. This system is good politically because the land is seen as being farmed for human needs and not merely as an individual's indulgence. It must be remembered that the rhino and the pastoral tribes have always shared the land. It is only in the last eleven years that this balance has been upset entirely due the sudden massive increase in the value of rhino horn. Up until eleven years ago people were using rhino horns as door stoppers! Suddenly good men are being killed trying to keep poachers at bay.

Another factor about multiple land use is that any protection given the rhinos also protects other wild animals, and we must now urgently think about the elephant. This whole meeting would be irresponsible if it was not urgently concerned about elephants, also.

The long-term prospects of the private rhino sanctuary are good. Their success has already been amply demonstrated. There are concerns for the future, however. One is funding. The second is where to move surplus rhinos. The development of new sanctuaries is possibly too slow to accommodate this surplus. We have to think big, and the Aberdares National Park holds the key to the future.

The Aberdares National Park in Kenya is a forested mountain range of 189,000 acres. Its boundaries have been established for over twenty-five years. This area is the only water catchment for the city of Nairobi. This water catchment potential has a political clout that no animals will ever enjoy. The Aberdares National Park must be securely fenced and that fence must be properly maintained. Within that fence will survive all of the major wild animal species of Kenya. There is no reason why they should not continue to flourish within that park for all of the foreseeable future, and long after other parks and sanctuaries have been squeezed out by human expansion. The Aberdares Park should remain inviolate from human greed because of its high

altitude and cold nights throughout the year. Humans cannot raise crops there because of nightly frosts, and domestic livestock animals do not thrive there for the same reasons.

There is another real advantage to the Aberdares Park. It is rough, mountainous, thickly forested country. Here the rhino and the elephant have all the advantages over the poacher. A rhino is so easily tracked and killed in the open plains areas of Kenya. The poacher has all the advantages and the wardens have a hard time catching them. There has been and always will be some poaching in the forest but it should not reach the same awful scale that it has in the flat lands of Kenya.

On the Galena game and ranching land, of which I am a director and partner, we have lost all of our estimated 250 rhinos, and over 95% of our 4,000 elephants. We also in 1977 lost our wildlife manager, Ken Clark, in a hot fight with Shifta poachers. Ken Clark was a experienced warrior and his death should show the world that this is not a simple policing job. Wildlife managers are up against ruthless and experienced guerilla fighters on many occasions. I must reiterate that these poachers cannot have such easy victories in the mountain forests. It is in the mountains that our hopes for the future must lie.

The existing sanctuaries will send their surplus to the mountain parks. When the Aberdares mountain range has been fenced we must plan to fence the equally large Mount Kenya Park. Here the rhinos and the elephant, and later on the mountain gorilla and the Simian Ibex and the mountain nyala, can all find sanctuary when all their other habitats are lost.

The rhinos in the low lands of Kenya are extinct. The east African low land elephant will be extinct in its wild, unprotected habitats within the next eleven years.

If we can save the rhino we can also save the elephant. The end of the battle to save the rhino is already in sight. The battle to save the elephant is close to being lost before we have even begun to fight for that magnificent animal.

Mr. Chairman I thank you for this chance to put this case to you and I humbly beseech you for the help of your great country to save the black rhino and elephant.

See APPENDIX for details on rhino numbers and acerages of land used by them.

DETAILS OF KNOWN OR MANAGED BLACK RHINOS
IN KENYA

	June 1988			Future Projections		
Private Land Sanctuaries	Acreage	Number of Rhino	Acres Per Rhino	Acreage	Number of Rhino	Acres Per Rhino
Solio Ranch	15,000	71	211	15,000	60	250
Laikipia Ranch	50,000	50	1,000	50,000	100	500
Oljogi	16,000	9	1,777	16,000	25	640
Ngare Sirigon	10,000	13	769	10,000	40	250
Totals	91,000	143	Avg. 636	91,000	225	Avg. 404
Kenya National Parks Special Rhino Areas						
Nairobi National Park	25,000	31	806	25,000	50	500
Tsavo Park--Fenced Sanctuary	750	7	107	35,000	50	700
Nakuru Park	34,000	17	2,000	34,000	70	485
Tree Tops Salient Aberdares Park	29,000	21	1,380	189,000	189	1,000
Totals	88,750	76	Avg. 1,167	283,000	359	788
Average Public Land Totals	179,000	219	820	374,000	584	640

These figures and future estimates are the author's own and do not include many isolated rhinos and undefined ares.

Mr. SCHEUER. Well, thank you. Thank you very much for your magnificent testimony about that magnificent animal. Why don't I yield to you for some questions. Dr. Foose, you called for a coalition of NGOs (the nongovernmental organizations) in the United States who are already concerned about saving the rhinos and presumably saving the elephants and you have called for the development of a common strategy of priorities and so forth, which have been formulated by the African elephant and rhino specialist group. What's the current status of NGO cooperation, that is, cooperation by the nongovernmental organizations on rhino conservation in North America; is there a lack of coordination that's plaguing our efforts to conserve the rhino, are these groups interfacing and dovetailing in a way that gives them a competent, well-coordinated drive, what is the status of that collaboration?

Dr. FOOSE. No, in my perception, there is not that kind of coordination and I believe that it would be very beneficial if that kind of coordination—even if better communication were occurring among the various NGOs that are interested and involved in rhino conservation. I might also add that we need to include in that perspective what is occurring in Asia as well as in Africa.

The Asian rhino specialist group has also developed a strategy and priorities and the three species there are—again although they may not be quite as critical as the black rhino in terms of the poaching pressure, they are all cases that really require our attention.

Mr. SCHEUER. Dr. Foose, why does the term mega-zoo that you use to define a fenced sanctuary protecting rhinos make some people feel very uncomfortable, even to the point of provoking sharp disagreement. What is there about that phrase that seems to get people on edge?

Dr. FOOSE. People believe as do most zoo professionals that the best place for animals is in the wild. Zoos perhaps traditionally have had a bad image as somehow being prisons for animals, depriving animals of their natural environment and activities, but the reality is that as the wild continues to be reduced and fragmented, the surviving populations and species are going to have to be managed genetically and demographically if they're going to survive.

I did allude to the fact that zoos are becoming much larger and more naturalistic. They can never recreate or simulate the wild but they can provide temporary sanctuaries for populations and species until the situation in the wild can either be restored or the populations can be restored.

Mr. SCHEUER. Dr. Ryder, what kind of funding are you and other scientists, other conservation biologists, receiving from the National Science Foundation for your work? Does it compare with the funding that they are providing for other branches of biological research?

Dr. RYDER. Mr. Chairman, right now the National Science Foundation is funding work in conservation biology but you can't call it that and you can't let them know that's what you're doing. Work in conservation biology has to compete on the merits with other proposals and so cannot be justified in any way because of its conservation benefit or impact.

Right now, these proposals all compete together, so there is no project in conservation biology as there are projects in other areas of biotic systems under NSF and although they do support some work, it's because a few people are clever enough to be able to design projects that concomitantly have scientific merit and serve conservation purposes.

Ms. SCHNEIDER. If I could interject, Mr. Chairman, that will be remedied because we have introduced report language in the recent bill that we passed that would change all of that so that the NSF now will be required to have a greater focus on biodiversity in general and to enable conservation biology to be expanded in a broader term.

Dr. RYDER. That's encouraging to hear.

Mr. SCHEUER. Is there a legislative barrier that you see to NSF getting into biological diversity programs or is it just that they feel queasy about it, about funding these programs in a time of funding constraint. What's the problem?

Dr. RYDER. I think the problems are probably several-fold. The main two issues are going to be a perception that their business is pure research and this conservation biology is in some aspect an applied research that's going to dilute their efforts to be able to undertake their mission of more pure research.

Mr. SCHEUER. Well, in this field, if there isn't some applied research, there won't be anything left to have pure research about.

Dr. RYDER. I couldn't agree with you more, Mr. Chairman.

Mr. SCHEUER. What kind of international cooperative education programs are available now to Kenyans or Zimbabweans who may want to bring the technologies that you are developing back to their homelands?

Dr. RYDER. Very little that I know about because in spite of my interest in this area, it's a difficult one to organize and achieve funding for in spite of the fact that recognition is widespread both in countries in Africa and among conservation biologists here that this is a logical and necessary way to achieve conservation of biological diversity goals.

Mr. SCHEUER. Mr. Dyer, from your vantage point as a former professional hunter, how do you view the utility of wildlife conservation, specifically rhino conservation? Does it work? Is it useful?

Mr. DYER. I think it's of tremendous importance. Of course, it's no longer valid in Kenya. There's been no hunting in Kenya since 1977 and I hope there will never be any more hunting because I don't think that Kenya can now stand it but all professionals hunters classically throughout history have been the strongest conservationists.

Mr. SCHEUER. What did you hunt, if I may ask?

Mr. DYER. What we used to hunt—I used to run safaris that both hunted and filmed the complete spectrum of African trophy animals.

Mr. SCHEUER. Were they abundant or were they beginning to be endangered species?

Mr. DYER. In my time, they were not only abundant but I think in many cases like in the case of the African elephant, under the protection of the Imperial Governments, the so-called colonies, elephant numbers increased to possibly, and I'm open to correction,

greater numbers than had ever been known in history before because females and young immatures were all protected.

The only animals collected by hunters on quite expensive licenses were mature and over-mature males.

Mr. SCHEUER. Thank you, Mr. Dyer. We have a roll call vote. We're going to suspend for about 12 or 14 minutes.

[Recess.]

Mr. SCHEUER. The committee will come to order and we'll hear the last panel, Panel 5: Mr. Brian Carey of the Armstrong Tire Company, accompanied by Mr. David Shelton and Mrs. Christine Stevens, representing the Society for Animal Protective Legislation.

Why don't we first hear from the corporate representatives and then we'll wind up our day of hearings hearing from the representatives of the consumers, the citizens, the people of this country and around the world who are deeply concerned about these biological diversity issues and particularly preservation of animals.

All right, Mr. Carey—this is our last panel. We are going to have a roll call vote in about 25 or 30 minutes. Why don't you take six or seven minutes and then we will hear from Mrs. Stevens and then we'll have some questions.

STATEMENT OF BRIAN CAREY, ARMSTRONG TIRE CO., ACCOMPANIED BY DAVID SHELTON, AND CHRISTINE STEVENS. PRESIDENT, ANIMAL WELFARE INSTITUTE AND SECRETARY, SOCIETY FOR ANIMAL PROTECTION LEGISLATION

Mr. CAREY. I think I can be a little more brief than that. I understand you are running a little late this afternoon.

Good afternoon. I am representing Paul James, the President of Armstrong Tire Company and we are here this afternoon because of our long association with the rhino, which has served as a trademark for our company for nearly 40 years.

The rhino has had a great benefit for our company serving as symbol of strength and toughness and we would now like to give something back to the rhino for all it has given Armstrong.

Armstrong learned of the catastrophic decline of the rhino only recently. We are now aware that without immediate action an age old animal may vanish from the earth. To help preserve the rhino we are taking the following actions:

We have provided a $50,000 grant to the American Association of Zoological Parks and Aquariums to help fund the Species Survival Program. The intent of this program is to increase the breeding opportunities for rhinos in domestic zoos and to improve the rhinos' population size and genetic diversity.

We are also working with SAVE to supply tires for trucks used by Zimbabwe's Parks Department in their patrol activities. These trucks are also used to help transport rhinos to more secure sections of the Parks to further improve the potential for species survival and protect them from poaching.

Armstrong this afternoon requests the U.S. Government join with organizations working to save the rhino and lends its support in the following areas. We place increased and economical pressure on nations which currently trade or consume rhino horns. We sup-

port efforts here and abroad to preserve and increase the present rhino population. Finally, we assist programs that can increase the public awareness on the plight of the rhino.

We at Armstrong thank you for the opportunity to speak this afternoon and hope that your Committee will continue to aid this organization and others in the fight to save the rhino. We have provided you with copies of Mr. James' remarks and if there are any questions I would be happy to respond to them.

[The prepared statement of Mr. Paul James follows:]

BEFORE THE SUBCOMMITTEE ON
NATURAL RESOURCES, AGRICULTURE
RESEARCH, AND ENVIRONMENT OF
THE COMMITTEE ON SCIENCE
AND TECHNOLOGY

UNITED STATES HOUSE OF REPRESENTATIVES

Hearings on the plight of the rhinoceros as an example of the rapid loss of the world's species

Statement of

Mr. Paul C. James, president

on behalf of

The Armstrong Tire Company

New Haven, Conn.

Wednesday, June 22, 1988

Mr. Chairman, members of the subcommittee and staff:

I am Paul James. I am president of Armstrong Tire Company with headquarters in New Haven, Conn., and manufacturing facilities in Des Moines, Ia., Hanford, Calif., Nashville, Tenn., and Little Rock, Ark. Our company, which has been making tires for 75 years, recently acquired by The Pirelli Group, Milan, Italy, has used a rhino as its trademark for the past 40 years.

We have, therefore, a traditional link to this endangered and prehistoric beast.

We appreciate this opportunity to express our deep concern for survival of the rhinoceros and to urge the United States government to take a more active role in rhino protection.

When this hearing convened nearly two years ago, several private citizens expressed their concerns that one of the largest creatures on the face of the earth faced extinction primarily to produce ceremonial daggers.

Armstrong Tire Company would like to add the voice of corporate America to this concern. And, we'd like to recognize that public concern is rising; concern, consternation and frustration.

Armstrong Tire Company began using a rhino to represent the toughness and durability of its tires in the late 1940's. In the early days of television the Armstrong rhino was highly visible and a primary sponsor of Dave Garroway's "Today" show. It was used in textbooks and encyclopedia articles as an example of well-recognized corporate trademarks using animals.

During the 1960's the trademark's use was limited. After extensive consumer research, Armstrong again began using it widely in advertising and promotion two years ago. That is when the plight of the rhino was brought to our attention. And, Americans have been alerted through more than three hours of television reports since April and hundreds of newspaper and magazine articles.

We learned that the rhino war was being fought in three theaters with little presence from the government of the United States. On the international front, the Convention on International Trade In Endangered Species (CITES) is fighting the flagrant violation of a ban on trade in rhinoceros horn most notably in Singapore and several African and near-East nations. We were incensed to learn that one of the world's richest nations had withdrawn from CITES reportedly claiming its annual dues of a $1,300 was too expensive.

Armstrong Tire Company immediately delivered $1,300 to the United Arab Emirates embassy, expressing our concern and hope that it would continue its membership in CITES and adhere to its accords.

The United Arab Emirates returned our check with the following assurance from Abdulla S. Al-Hammadi, second secretary: "We appreciate your company's efforts to ensure the survival of the African rhino and share deeply your concerns. Please be assured that the country's withdrawal from the CITES does not mean that illegal trade in rhino parts will be allowed

in the United Arab Emirates. The government will still observe regulations of CITES and other appropriate measures to ensure that the country does not become a trade center for rhino parts." The entire letter is attached to our formal statement.

It has been reported to us that the United Arab Emirates has become a trade center in illegal rhino parts.

We recognize this is in a highly sensitive region of the world. But, we ask if the United States has brought all of its diplomatic weapons to bear on this nation and others that give only lip service to humanitarian concerns such as the survival of endangered species.

In fact, we learned of an ironic situation in Africa recently when we received an urgent appeal for tires from the parks department in Zimbabwe, through a concerned private organization in the Unites States called SAVE. More than 30 trucks were virtually on blocks because they had flat tires and no money was available to buy new tires.

These vehicles were being used by park rangers to move rhinos, from areas where international poachers were slaughtering them, into protected areas.

Our dismay at this situation grew when our investigation determined that because a Zimbabwean official in 1986 criticized the United States for providing financial aid to South Africa, the U.S Agency for International Development has removed Zimbabwe from the list of 40 African nations to receive economic assistance --- a list which includes South Africa.

In the domestic theater of the rhino wars, Armstrong Tire Company granted $50,000 in 1988 to the American Association of Zoological Parks and Aquariums to assure completion of rhino movements among zoos as required

by the AAZPA's species survival plan. The expense and complexity of moving these sensitive animals among zoos is necessary to maintain a diversity of genetic lineage among the 175 rhinos in captivity in the U.S. and to improve their breeding records.

Another part of the AAZPA plan calls for research into rhino genetics, and experimentation with artificial insemination and embryo transfers.

Armstrong cannot underwrite the millions of dollars this research program needs. Perhaps the government could.

And, the third theater of the rhino war is within the American public. Here, we found forces divided among several non-profit organizations, all with the same basic objective; to save the rhino. Each has independently appealed to Americans for money or equipment to help African nations protect their shrinking numbers of rhinos.

The subcommittee has heard from Tom Schneider and the lovely actress Kathryn Harrold of Rhino Rescue, USA. This group is to be commended for its active awareness campaign and high goals of establishing a multi-million-dollar endowment to save the rhino.

The World Wildlife Fund, too, is asking Americans to contribute to its projects to protect rhinos and to monitor international trade through its participation in the "Traffic" organization.

The New York Zoological Society's "Rhino Rescue Fund" has conducted a successful fund drive aimed primarily at efforts to protect the Black Rhinos.

A smaller, but very aggressive organization called "Save" has effectively gained corporate and private donations, mostly of equipment such as backpacks, radios and airplanes, to keep Zimbabwe's "Operation Stronghold" viable.

Yet another, Game Coin International, is seeking the funds to establish a sanctuary for rhinos in western Texas.

Each of these groups has approached Armstrong for financial support. More probably exist but have not come to us --- yet. As a corporation Armstrong Tire Company has never asked for government intervention but, we feel someone needs to assume a leadership role in the efforts being expended by all of these private organizations.

An army cannot function effectively without a general. As an example of the diverse resources of these groups, and their potential synergism, the SAVE organization owns the rights to a fine song that carries an emotional message about the plight of the rhinos. Yet another group Rhino Rescue, USA, has connections with a small record company called, ironically, Rhino Records.

By working together, these two organizations might be able to truly benefit from these resources. And, in the end, rhinos would be the true beneficiaries.

In summary, we are here today to express our concern as a member of the American corporate community for the survival of a valuable natural resource --- the rhino. And, we believe the Congress should take immediate steps to increase international recognition of CITES trade restrictions

and enforcement, funding of domestic research into rhinoceros breeding and to take a leadership role among private efforts to save rhinos in the wild.

Also, once again we would like to acknowledge Rhino Rescue USA for helping to organize this hearing and for giving those parties interested the opportunity to speak out for rhino conservation.

Thank you.

Mr. SCHEUER. Thank you very much, Mr. Carey. Now we'll hear from Mrs. Stevens for five minutes.

Mrs. STEVENS. I am Christine Stevens, President of the Animal Welfare Institute and Secretary of the Society for Animal Protective Legislation, organizations dedicated to the protection of endangered species, humane education, improvement of conditions for laboratory animals and farm animals and prevention of cruelty to all animals.

Mr. Chairman, let me begin by thanking you for inviting me to testify at this hearing and for your tremendous foresight and wisdom in addressing this issue. While many members of Congress look only at the near term and often trivial matters, you have consistently been a future thinker and concerned about global issues including human fertility control basic to maintaining ecological diversity, one of the most critical issues facing our planet.

The issue is really a question of what sort of world we are going to leave behind us, the world that we inherited with a rich diversity of life or a world irrevocably and immeasurably impoverished by our human greed.

We have heard today from distinguished experts in the field of rhino conservation. I want to add to their testimony by pointing out the role of private citizens and groups such as Rhino Rescue, which has led on this issue, the Animal Welfare Institute and the 30-member organizations of Monitor USA.

Some believe the animal welfare movement focuses only on captive animals, but the fate of vast groups of wild animals is especially shocking and appalling. Commercial trade in rhino horn, ivory and wild-caught birds are among the most severe examples. As earth's habitats are increasingly modified by people, more and more animals and plants are destroyed. The deaths of many of these animals are slow and unseen. They are pushed out of their homes and into marginal areas where they cannot survive.

The fate of wild animals such as rhinos is an issue of human ethics as much as the treatment of domesticated animals. We not only are dealing with the killing of individuals but also even more egregiously the extermination of whole populations and species. How can we call ourselves civilized when we see the plight of rhinos, elephants and other species and then let them become extinct?

One of the most important things that citizens and citizen groups can do is to educate the public. There was testimony today about how North Yemen is one of the major markets for rhino horn, which is made into dagger handles. Yet according to Dr. Daniel Varisco of the Pennsylvania State University, the people of North Yemen have no idea what a living rhino looks like. In research funded by USAID and the World Wildlife Fund he found that the Yemenites have never seen a living rhino and regard it as almost a mythical creature similar to the way we regard a unicorn.

How can these people be expected to care about conserving an animal of which they have no understanding? Clearly we need a broad scale educational program to reduce the demand for products of endangered species as a complement to the efforts to control the supply and protect the species.

I would like to submit for the record a short report from the Animal Welfare Institute on consideration by CITES of the Ivory trade and also, if I may, the article that recently appeared in Swara by Dr. Iain Douglas-Hamilton which has very disturbing statistics showing how the elephant population is decreasing more rapidly in unprotected areas but even the protected areas have—well, in Kenya for example, it's gone down 85% in 15 years——

Mr. SCHEUER. Can I ask you how many pages that article is?

Mrs. STEVENS. Maybe it is too long.

Mr. SCHEUER. If it is only a few pages, we can include it in the record.

Mrs. STEVENS. Yes, or if you want to select——

Mr. SCHEUER. Why don't we do that?

Mrs. STEVENS [continuing]. And use the statistics; I think it might be helpful to have that.

Mr. SCHEUER. Thank you very much. Please proceed.

[The article mentioned above referred to follows:]

COPIES FOR NORTH AMERICA FLOWN COURTESY OF PAN AM NAIROBI

Inside:

ELEPHANTS, RHINO MAN, TELEKI...

The great East African elephant disaster

by Iain Douglas-Hamilton

Everyone knows that for years poachers have been killing elephants for ivory. What nobody appears to be aware of, other than a few wardens and wildlife scientists, is the extent of the destruction of elephants in East Africa, and how fast the remaining elephants are disappearing.

This wave of killing elephants for ivory is the second of its kind, the first having all but wiped out elephants in much of East Africa before the turn of the century. With the advent of game laws and protected areas, elephants recovered, and until 1970 it was thought that they were safe from this form of extermination.

It has been my work to monitor the changes of elephant populations over the last 12 years for a number of conservation organisations, development agencies, and government wildlife departments. During this time I have organised or participated in many elephant counts in the three countries of East Africa.

Last year the best available elephant data were assembled in a UNEP report, sponsored by WWF and the Elsa Wild Animal appeal. Anne Burrill and I co-authored this report. The study took the data and modelled elephant population estimates for Africa, country by country, using a giant geographical information computer at the the Global Environment Monitoring System/UNEP. The object was to provide African countries with the best elephant information so that they could agree on ivory quotas, under the new CITES Ivory Export Quota Agreement. The report was presented in time for the CITES meeting in Ottawa in July 1987.

In the course of this work we looked at East African elephant trends. This region out of all Africa has been particularly famous for its elephants, and there was a great deal of data. Wilbur Ottichilo from the Kenya Rangeland Ecological Monitoring Unit painstakingly assembled the results of the latest KREMU surveys, and we compared these with previous counts. Tanzania and Uganda also provided the necessary information, including counts which I helped co-ordinate in the Selous Game Reserve, Lake Manyara and the Uganda national parks. Many colleagues in wildlife research contributed, including members of the African Elephant and Rhino Specialist Group of IUCN.

The results are summarised in the table on page 11, which is updated only with respect to the count made in Manyara last November. It represents a comprehensive picture of changes in elephant populations in East Africa over the last 15 years for Kenya and Uganda, and over the last ten years for Tanzania.

From the table it is obvious that elephants before 15 years ago were still very numerous even outside protected areas. In fact many thousands were shot annually in the 1960s in order to protect crops, without any overall negative impact on numbers. The ivory from these 'control' operations, and licence fees from elephant sport hunting, helped to make the wildlife departments of those countries self-sufficient.

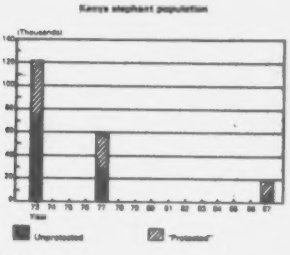
The resurgence of the ivory trade began in 1970 with a rapid increase in the price of ivory. The elephant crashes that have occurred are not unique to any particular country, and have been replicated in Uganda, Kenya and Tanzania.

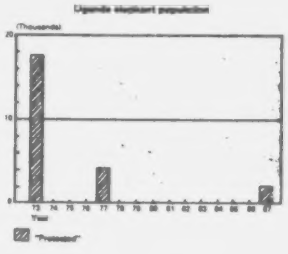
In Uganda the fall was the most dramatic in the early 1970s, when Amin's men looted the national parks for ivory, including the Murchison Falls Park south of the Nile, where elephants dropped from 9,000 to 1,700 in three years. (They have since been virtually eradicated.)

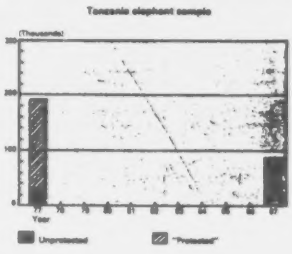
The Kenyan record was not such an abrupt fall, but in absolute terms the number of elephants lost was greater. However, the trends in Amboseli, the Mara and Laikipia provide exceptions to the general decline. In each case, these safe havens have been crowded with refugees.

The Tanzanian elephant collapse got going later and at a slower rate, although in actual numbers of elephants the loss was the greatest. For example, 55,000 elephants were lost in the Selous Game Reserve over ten years. Today there are still 55,000 left, which amounts to nearly half of East Africa's elephants.

Some of the key indicator populations had not been sampled for a while when this table was assembled. Results coming in since last July suggest that we may have seriously underestimated the rate of decline for some populations, for example Lake Manyara, which now has been recounted and only numbers 180 to 200, compared to the 430 we had assumed. Ruaha Rungwa was estimated at some 22,000, but results currently being analysed by the Serengeti Wildlife Research Institute will give a far lower figure. Finally, the elephants of Mkomazi Game Reserve, which were estimated at 2,800 in 1968 and 670 in 1977,



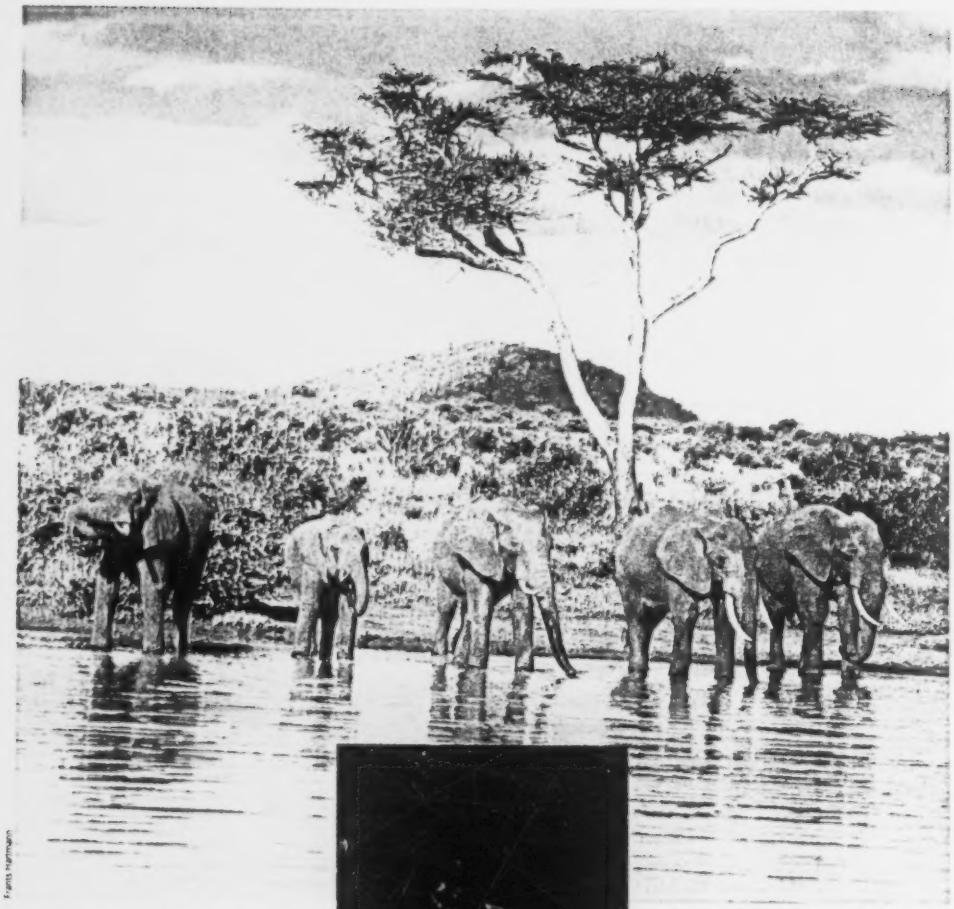




Iain and Oria Douglas Hamilton

Iain and Oria Douglas Hamilton

A typical family unit of mothers and their immediate offspring in Lake Manyara (boys), a young female in Tsavo (left). playful contact between members of a family unit reinforces strong social ties (above).



Frans Hartmann

Ian and Oria Douglas Hamilton

Above: A group of elephants in Tsavo West National Park.
Left: A small baby suckling its mother in Lake Manyara National Park.

have now declined to 90 animals, rather than the 193 we had extrapolated.

In the rest of Africa, data is more scanty, but most of it paints a picture for the elephants which is similar to or worse than East Africa. Only in parts of southern Africa are elephants still numerous, although even here the largest population, living in the north of Botswana, has probably immigrated from elsewhere, fleeing the fighting and the poaching. It is beyond the regional scope of this article to give the whole continental picture, but what data exists is summarised in the UNEP report, which will soon be available in popular form.

It is now universally recognised by responsible scientists that the current offtake of ivory is too high, not only in East Africa, but in most of the continent. As leading wildlife scientist David Western and his colleagues have shown in a computer model, a constant offtake of ivory if excessive will cause a population crash which starts slowly and then accelerates, and this seems to be what has happened.

Even the most cautious scientists now recognise that the elephant will become an endangered species if the present offtake of ivory continues. For East Africa the data would suggest that the elephant is already an endangered species. There is no way the East Africa elephants could sustain over the next ten years the ivory offtake of the last ten without going extinct.

There is a strong case to suggest that the Western public and Far Eastern ivory buyers bear a heavy responsibility for the destruction of elephants. The CITES quota system if it can be made to work could help to aid law enforcement by identifying clearly that small proportion of legal ivory making up today's trade. The illegal trade should then be eliminated. It would help devalue ivory if people would refuse to buy, sell or wear it.

The time to stop buying ivory and to launch a 'Save the Elephant' campaign is now, not in ten years when the elephant has

gone the way of the rhino. Such a campaign should work closely with African governments and NGOs such as the East African Wild Life Society to stop the elephant killing.

There are some signs to show that the disastrous elephant situation could be reversed. For one thing in 1900, when everyone thought that the elephant was about to become extinct, game laws were enforced at the eleventh hour and the decline was halted.

In Kenya, with the appointment of Dr Perez Olindo as Director of the Wildlife Conservation and Management Department, there is an atmosphere of reform in the air. It is apparent from a February count in Tsavo (whose results are being worked up) that most of the heavy mortality occurred before the last 12 months, and that current poaching is mainly on the fringes of the park and in areas outside.

In Tanzania, following the Selous Survey in 1986, massive anti-poaching operations were launched and the government appears serious in its determination to stamp out poaching. The anti-poaching forces have acquired a new aircraft. The Tanzanian government has banned the private trade in ivory and the ivory carving industry, which acted as an uncontrollable loophole. Foreign donors have proved to be willing to give money and provide equipment to rehabilitate the national parks and reserves.

In Uganda also there is strong support from EEC and UNDP for the national parks organisation, but no recent news has come of the largest elephant population in the Murchison Falls park. Traditionally, there has been a strong commitment to wildlife and applied research in Uganda, which is currently attracting international support and which has proficient local participants.

The crux of the matter now is for East African leaders to give priority to halting elephant poaching and to eliminating the illegal ivory trade. The ivory trade is totally outlawed to private individuals in both Kenya and Tanzania, but poachers do not exist where there are no ivory buyers to receive the goods.

With a real commitment on the part of the East African governments and donor agencies, there is no doubt that the tide which has been flowing so strongly against the elephants can be halted and put into reverse. Without this commitment, we can expect the elephants to nosedive to the low hundreds.

Dr Iain Douglas-Hamilton is a leading conservationist known for his work on elephants. He received his doctorate in 1972 for a five-year study of the ecology and behaviour of the elephants in Tanzania's Lake Manyara National Park. While campaigning to get the Lake Manyara park extended, he made a television film with Anglia and also co-authored a best-selling book, *Among the Elephants*. He is presently analysing elephant data from all over Africa in a joint project sponsored by the European Economic Community and the WWF, in the course of which he assisted in co-ordinating the recent Tsavo elephant count (see 'Society Highlights' in this issue).

Trends in sample East African elephant populations

Kenya sample

Districts excluding protected areas	1973	1977	1987	15-year change	15-year % change
Garissa	14,500	7,092	678	-13,822	-95%
Lamu	7,000	3,412	310	-6,690	-96%
Tana River	32,000	6,524	1,152	-30,848	-96%
Kilifi	10,000	806	100	-9,900	-99%
Kwale	2,000	1,420	182	-1,818	-91%
Isiolo	2,000	1,275	154	-1,846	92%
Samburu	9,000	1,318	427	-8,573	-95%
Turkana	1,500	1,318	444	-1,056	-70%
Laikipia	1,000	3,060	2,791	1,791	179%
Narok	5,000	1,921	243	-4,757	-95%
Unprotected sub-total	**84,000**	**28,146**	**6,481**	**-77,519**	**-92%**
Protected areas					
Mara NR	720	710	1,100	380	53%
Amboseli NP	550	450	680	130	24%
Meru NP	1,500	2,000	427	-1,073	-72%
Samburu Buffalo Springs NR	2,500	531	632	-1,868	-75%
Marsabit NR	300	900	529	229	76%
Mt Kenya NP	2,500	3,000	2,000	-500	-20%
Mt Elgon NP	500	1,000	200	-300	-60%
Aberdare NP	3,000	3,000	2,000	-1,000	-33%
Tsavo ecosystem	35,000	19,300	5,700	-29,300	-84%
Protected areas sub-total	**46,570**	**30,891**	**13,268**	**-33,302**	**-72%**
Kenya total	**130,570**	**59,037**	**19,749**	**-110,821**	**-85%**

Tanzania sample

Unprotected areas			10-year change	10-year % change
Arusha complex	16,660	2,146	-14,514	-87%
Tabora region	8,399	1,958	-6,441	-77%
Kilombero	5,848	2,230	-3,618	-62%
Unprotected sub-total	**30,907**	**6,334**	**-24,573**	**-80%**
Protected areas				
Selous GR and Mikumi NP	109,000	55,000	-54,000	-50%
Ruaha NP, Rungwa GR, Kizigo	43,685	21,986	-21,699	-50%
Serengeti NP	3,008	395	-2,613	-87%
Manyara NP	453	180	-273	-60%
Tarangire NP	3,000	3,000	0	0%
Mkomazi GR	667	193	-474	-71%
Protected sub-total	**159,813**	**80,754**	**-79,059**	**-49%**
Tanzania total	**184,872**	**87,088**	**-97,784**	**-53%**

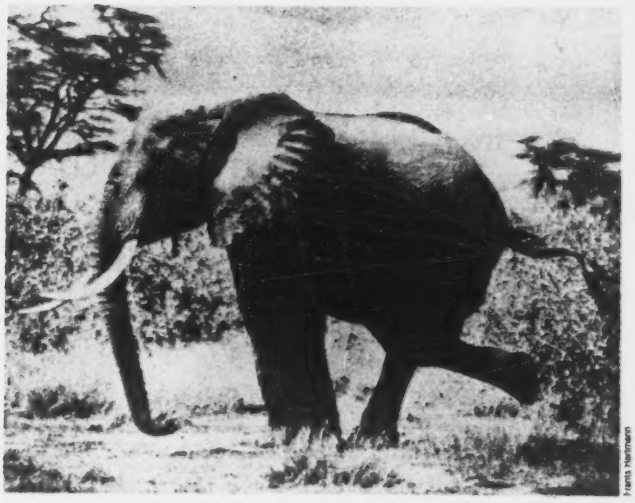
Uganda sample

Protected areas				15-year change	15-year % change
Kidepo NP	820	615	430	-390	-48%
Queen Elizabeth NP	3,000	1,200	700	-2,300	-77%
Murchison Falls NP	13,800	2,375	725	-13,075	-95%
Protected total	**17,620**	**4,190**	**1,855**	**-15,765**	**-89%**

These figures are reproduced from the *African Elephant Database Report*, UNEP 1987, and are derived from a variety of sources, many of them sample counts. These estimates include almost all of the elephants in Kenya and Uganda and about 75 per cent of those in Tanzania.

The Lake Manyara elephants

by Iain Douglas-Hamilton



Hans Hartmann

The elephants of Lake Manyara formed one of the few populations I thought was safe. It is a small isolated park of incredible beauty, and well known in Africa for its high density of elephants and the ease with which they can be watched. Long-term elephant studies, initiated in 1966, made this one of the best-known elephant populations in Africa. It was the first where elephants were studied in the wild as individuals. Its small size makes it relatively easy to patrol, and for years it escaped the general East African elephant trend. This happy circumstance lulled me into a false sense of security.

For 20 years, I have flown periodic aerial surveys to count the elephants. From air and ground work, I knew that the population had gently increased from 1967 to 1985. In 1967 there were just over 300 elephants counted from the air and in subsequent surveys these increased to a maximum of 485 in 1981. 1984 and 1985 both gave slightly lower numbers, but well what might be expected from movements in and out of the park.

In November 1987, Professor Karim Hirji of the Serengeti Wildlife Research Institute, and I made another count. This time only 181 elephants were counted, by far the lowest number ever recorded. In just two years the population had more than halved. Dead elephants were at an all time high and numbered 94, giving a carcass ratio of 34 per cent. Just over half of the dead appeared to have died within the previous 18 months. Since dead elephants are difficult to spot from the air, it is likely that for every one we saw there was another we missed.

The Manyara elephants have now become much shyer and tend to stick in thick bush. They have almost given up the habit of walking out on the open shore in the evenings in huge herds, as used to be their custom (which is a sad loss for the tourists). The older age groups are underrepresented and Patti Loesche, who studied them last year, repored that she saw one wounded elephant per day on average.

During my trip around the park for the survey, I saw one elephant with spear wounds at the Musasa river, half-way down the park. I saw none of the old matriarchs that I knew before, but I did see the three young matriarchs Tuskless, Virgo and Phoebe. One of these had no tusks, another only one. Otherwise there were no large elephants, either bulls or cows, to be seen in the park. It appears that almost every elephant over the age of 30 is missing, and must be presumed killed. It is as if a whole older generation has been wiped out.

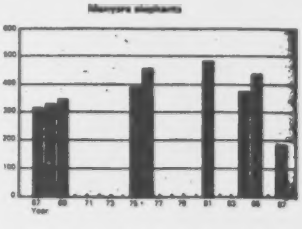
The drop of -25 per cent year over two years is much worse than the national average. In the Selous Game Reserve, for example, elephants were decreasing at a rate of -5.5 per cent per year.

The Manyara elephant situation shows that there is nowhere that the safety of elephants can be taken for granted. If it is considered as an indicator population, the implication is that elephants are decreasing in Tanzania and possibly elsewhere faster than has been realised.

It is possible that this sudden negative trend is related to a further rise in the price of ivory. Although I have no data on the price of ivory in Tanzania, it is known that the international price of ivory showed a sharp increase in 1987. One major batch of ivory sold in Brussels at a price of about $150 per kilo, compared to $100-120 the year before. The danger is that poachers will find an incentive to come after even the small and supposedly well-protected populations like that of Manyara.

The Tanzanian national parks authorities have taken action since receiving the count report, and anti-poaching operations in Manyara have been redoubled. They still lack equipment, however, especially transport for the anti-poaching operations. It is to be hoped that international donors will step into the gap and provide a rapid response in terms of transport, equipment, fuel and whatever is needed to protect this unique population.

In addition, the ban on private trade in ivory in Tanzania needs to be reinforced, especially by consumer countries, preventing illegal Tanzanian ivory from being imported and entering their markets. It would help greatly if a TRAFFIC office were to be set up in East Africa to help monitor ivory movements abroad and, through the CITES quota system, to identify which ivory is legal and which illegal. If the illegal ivory could be eliminated, the pressure on the elephants would be greatly reduced.



Mrs. STEVENS. I would like to add a couple more things if I may, if I have got a little bit of time——

Mr. SCHEUER. By all means.

Mrs. STEVENS. We have been hearing about the need for funding in Africa, which is great and we should certainly do all that we can for it but I'd like to emphasize that we need more money for law enforcement by the U.S. Fish and Wildlife Service. A lot of this poaching is in order to sell to this country not only ivory, which we are a big market for, but also when I visited the port of New Jersey—I mean the big port in New Jersey—with the Fish and Wildlife Service we find rhino medicine coming right in and there was a great deal of effort to prevent proper law enforcement there.

They had to wait and wait and then unload one of those huge containers and they kept unloading and unloading—in the middle was the smuggled rhino medicine. The rest of it was simply joss sticks and crackers and cookies and things that were perfectly legal, so I think in order—our feeling is that a great deal of this is the fault of a rather small number of very powerful, wealthy dealers, international dealers who finance the poaching in Africa from their apartments in Paris or their offices in Hong Kong or now they also have them in Dubai and that our own law enforcement has got to be stepped up—not that that's going to take care of everything. All the whole world needs to step up law enforcement but that is one aspect that I think hasn't been mentioned today that I wanted to bring out.

Mr. SCHEUER. Where do you think our law enforcement should be stepped up, from the U.S. Fish and Wildlife Service? Is it law enforcement in this country, at our borders, overseas in Africa? Where should it be?

Mrs. STEVENS. Well, I don't know what we can do overseas in Africa but I certainly know that right here on our borders we don't have enough agents and we don't have enough enforcement personnel. There is a Division of Law Enforcement of the Fish and Wildlife Service. I testify every year trying to get more money for them and usually I succeed, obviously with other groups, in raising that amount by about a million dollars but it is not enough. I mean it isn't even faintly enough and there aren't enough people that are trained.

For example, with the wild birds, they don't see the birds coming in. Agents only are there during the day and lots of times wildlife shipments come in at night.

Mr. SCHEUER. You mean they'll come into our airports?

Mrs. STEVENS. That's right, and in other words we are allowing things to go on that are already illegal for lack of enforcement and of course the African countries have the same problem and the funding is inadequate in both cases even though the country has funds. I was just speaking with Mr. Nduku and there's funding enough for other expenditures, such as military expenditures which he mentioned to me, but not enough to patrol as is necessary. We need to patrol too and we need to examine things that are coming in.

The only reason they were able to find that rhino horn medicine coming in was because they had been tipped off and of course intelligence is very, very important. They need more intelligence.

I don't want to take more time because it is very late but I do want to just say that I am glad that you are focusing on the whole matter of biodiversity. You mentioned rain forests, chimpanzees—I could go on and on at great length but I won't do so now.

Thank you very much, Mr. Chairman.

[The prepared statement of Mrs. Stevens follows:]

88-829 O - 88 - 6

STATEMENT

CHRISTINE STEVENS

ANIMAL WELFARE INSTITUTE

JUNE 22, 1988

CONSERVATION STRATEGIES/SAVING THE ENDANGERED RHINOCEROS

SUBCOMMITTEE ON NATURAL RESOURCES, AGRICULTURE RESEARCH

AND ENVIRONMENT

I am Christine Stevens, President of the Animal Welfare Institute, an 8,000 member organization dedicated to protection of endangered species, humane education, and improvement of conditions for laboratory animals.

Mr. Chairman, let me begin by thanking you for inviting me to testify at this hearing and for your tremendous foresight and wisdom in addressing this issue. While many Members of Congress look only at the near-term and often trivial matters, you have consistently been a future thinker and concerned about global issues.

The loss of biological diversity, of which rhinos are a classic case, is one of the most critical issues facing our planet. The issue is really a question of what sort of world we are going to leave to our children, be it the world that we inherited with a rich diversity of life, or a world irreversibly and immeasurably impoverished by our human greed.

You have heard today from distinguished experts in the field of rhino conservation - the scientists and managers who are on the front lines to learn what is necessary to save species and are diligent in their efforts to apply that knowledge for conservation. I want to add to their testimony by pointing out the role of private citizens and groups, such as Rhino Rescue, which has led us all on this issue, the Animal Welfare Institute, and the Humane Society.

Too often the animal welfare movement is seen to focus only on the welfare of captive animals: pets and laboratory animals, but the fate of wild animals is especially shocking and appalling. As the Earth's habitats are increasingly modified by people, more and more animals and plants are destroyed. The deaths of many of these animals is slow and unseen. They are pushed out of their homes and into marginal areas where they must compete with other animals in order to survive. These displaced animals are often the first to fall to predators or to succumb to disease or starvation.

In the case of rhinos, they have been forced to congregate in unnaturally high densities in the few protected areas that remain. When animals wander off in search of better conditions and encounter people, they are labelled as "problem animals" and are often shot. It is not the animal that is the problem; it is the conditions that force humans onto land that once belonged to rhinos.

The fate of wild animals such as rhinos is as issue of human ethics as much as the treatment of domesticated animals. We not only are dealing with the killing of individuals, but even more egregiously, the extermination of whole populations and species. How can we call ourselves civilized if we see the plight of rhinos and other species and let them become extinct?

One of the most important things that citizens and citizen groups can do is educate the public. Our ignorance about wildlife and wildlife products is overwhelming and appalling. Dr. Sue Lieberman of the Humane Society testified this morning before another Subcommittee regarding elephant conservation. She was shocked at the number of Congressional staff members who were unaware that ivory came from dead elephants. Many of these staffers were from offices that were cosponsoring the Elephant Protection bill. I hate to consider what the other staffers know about the issue.

There was testimony today about how North Yemen is one of the major markets for rhino horn, which is made into dagger handles. Yet, according to Dr. Daniel Varisco of Pennsylvania State University, the people of North Yemen have no idea what a living rhino looks like. In research funded by U.S. AID and the World Wildlife Fund, he found that the Yemenites have never seen a living rhino and regard it as an almost mythical creature, similar to the way that we regard a unicorn. How can these people be expected to care about conserving an animal that they have no understanding of? Clearly, we need education to reduce the demand for products of endangered species as a complement to the efforts to control the supply and protect the species.

Mr. Chairman, without education and other efforts to reduce demand, the brave wardens protecting our dwindling herds of rhinos will have to be standing guard in perpetuity. Groups like the one that I represent are eager to be a continuing part of the international effort to save rhinos and all other components of biological diversity.

This concludes my testimony. I will be pleased to answer any questions that the Committee might have.

Mr. SCHEUER. Well, we appreciate your testimony very much, Mrs. Stevens. Do other animal welfare groups than the one that you are heading up share your organizational concern with the preservation of biodiversity and animal conservation?

Mrs. STEVENS. Yes, I was mentioning Monitor in particular because we band together, we meet every Monday. It was formed to monitor the Endangered Species Act—and the Marine Mammal Protection Act—but it has expanded into many other aspects of wildlife protection and that entire coalition is very much interested.

Mr. SCHEUER. Can you cite any examples for us of successful efforts to protect animals through strong citizen action, public education, citizen activists and the like giving the kind of leadership you are giving?

Are there other examples?

Mrs. STEVENS. I think probably the most common example of a great deal of progress without total success is in the reduction in the number of whales that are killed.

That is an endangered species as well as a humane concern because the way whales are killed is extremely cruel and the great whales were all placed on the U.S. Endangered Species List by Secretary Hickel a long time ago when they were beginning to go down and of course not only are they also on the CITES Appendix I but it has taken an enormous amount of citizen protest.

We organized demonstrations. Some of them, many of them were not big demonstrations but we kind of lost track after we had had 400 all over the country. We would send out materials for people to conduct demonstrations and that is over a period of years of course, and then some of the demonstrations have been very large and they have continued.

Petitions to the whaling countries, and as you know Russia finally did go out of commercial whaling last year.

Mr. SCHEUER. And Japan hasn't I take it.

Mrs. STEVENS. Well, Japan is doing so-called "research whaling" with an eye to getting commercial whaling approved again by the International Whaling Commission in 1992, when the period of cessation comes to an end. A moratorium was voted 27 to 7 in the International Whaling Commission to have the cessation of commercial whaling and it is hoped that that will be the end of commercial whaling, but in the beginning when we first started, the whole of the International Whaling Commission's consideration of the whales was secret for one thing. Now of course they have been forced to make more public what they are doing, though not very public. They don't let the press come right into the meetings. They have to sit upstairs and listen to it over a radio.

It has been a very slow process but what I'm really trying to say is that they were killing tens of thousands of whales every year. Now they are down to less than 300 and that was citizen action.

Mr. SCHEUER. That was largely due to widescale citizen involvement, participation and leadership.

Mrs. STEVENS. Right, and then of course the groups sued the Secretary of State and the Secretary of Commerce also and we went up to the Supreme Court and got reversed but it had a powerful effect and we may be back in court if necessary.

Mr. SCHEUER. Well, thank you very much, Mrs. Stevens. You really give us hope that citizens, both individual citizen leaders like yourself and citizens working together in groups can really make a difference and can galvanize governments to move forward and to move forward fast, so we are very much in your debt.

Mrs. STEVENS. We are in your debt.

Mr. SCHEUER. Let me wish you success in your efforts. We look to the concerned environmentalists and animal protectionists and folks who are concerned about biological diversity to keep prodding, not only the Executive Branch but Congress too, because we respond. Unfortunately the squeaky wheel generally gets the grease and so if you want the Government to respond to your concerns you better poke us and nudge us a bit, just as you are doing today.

Mrs. STEVENS. We will certainly take your advice.

Mr. SCHEUER. Thank you very much for testifying.

Mr. Carey, we understand that Armstrong originally indicated some unwillingness to fund rhinoceros conservation programs in Africa but that finally with the agreement to supply tires to Operation Stronghold in Zimbabwe, that stance of opposition apparently changed.

What held Armstrong back initially and what concentrated the mind to the point of reversing that initial reluctance?

Mr. CAREY. As I mentioned earlier, Armstrong's recognition of this as a problem was a fairly recent event. I suspect we were first approached by someone with domestic concerns and again because we are not an international based company or weren't until recently, our focus was probably more domestic.

We saw aiding a program near at hand as the first step we could take. Managing concerns overseas, is something that is a little more elaborate for us, something that takes a little more effort, a little more time, a little more coordination.

I think too we would have to be convinced of the value of the program. Individuals from the AAZPA presented a good case on why there was a need and what benefit there would be on an immediate basis.

Mr. SCHEUER. Well, for whatever reason, we're very happy that Armstrong is committed. One thing I've learned in life is that when somebody helps you, you don't question their motives. You are just thankful that they are involved and you don't question why they weren't involved sooner or, why they weren't involved to a greater order of magnitude. You just express your thanks that they are involved and move on from there, so I think that's all to the good.

Why are other corporations apparently reluctant—all right, we'll be winding this up in about six minutes. Why are other corporations reluctant to join international conservation efforts?

Mr. CAREY. I think it would be a little bit difficult for me to answer for other corporations.

Mr. SCHEUER. Well, I am not asking you to represent them. I am just asking you to speculate a bit as to why they are reluctant and what could be done to sort of goad them a little bit to involve themselves?

Mr. CAREY. If I were looking at it in the perspective of a company similar to ours, you are confronted with the problems immediately in front of you, those within your own area, your own section of the globe. The message probably has not been brought home completely to these people that there is a need outside of the U.S. for this kind of support.

We mentioned that public awareness as a whole on the rhino program is improving but is still not a particularly widespread effect.

I would suggest that if members of Armstrong were learning of this problem fairly recently, we are not alone in the corporate environment. I am sure there are others in the business world who are not really aware of the nature or the degree of the problem.

Mr. SCHEUER. That's undoubtedly true. What leadership role do you envisage Armstrong playing in the future in continuing rhino conservation efforts as they unfold, above and beyond the $50,000 that you have already contributed and also the tires that you are donating to Zimbabwe?

Mr. CAREY. We are in discussion now with several groups as to what further contributions can be made both to continue our participation in the Species Preservation Plan and to fund additional activities within the African continent.

I believe the tires were the first step, the first support that we had extended outside of our own borders but we will be looking at other activities.

Mr. SCHEUER. Well, very good. Is there anything you think that Congress can do or this Committee could do in stimulating greater corporate involvement, like the involvement of your corporation? Mr. Shelton, do you want to say a word?

Mr. SHELTON. The hearing itself adds to the information flow, the public awareness. The more information that can be disseminated either from the Government or from the media about the plight of the rhino or other endangered species, I think adds to the education process. Whatever support you can give directly to these programs I think would increase the participation on the corporate level.

Mr. SCHEUER. As corporations begin to be sensitized and educated as to the problem of disappearing rhinos and disappearing elephants, as their consciousness level is raised, do you think they would be more inclined to involve themselves?

Mr. SHELTON. I think they would. I think too if you look back over the years, there have been a number of contributions made by corporations both here and abroad that support various programs, some wildlife, some others. I think in this particular case you may need to focus more on this particular problem.

Mr. SCHEUER. Well, thank you very much, Mr. Carey, on behalf of Armstrong, and thank you very much, Mrs. Stevens. This has been a splendid finish of a remarkably interesting afternoon of hearings and I thank you both.

The hearing is terminated.

[Whereupon, at 5:25 p.m., the subcommittee recessed, to reconvene at the call of the Chair.]

APPENDIX

TELEPHONE (202) 387-6101
TELEX NO 440215
TELEGRAM KENYAREP
CABLE KEMBASO
OUR REF NO: KEW/TRSM & WILD/25/5

EMBASSY OF THE
REPUBLIC OF KENYA
2249 R STREET, N.W.
WASHINGTON, D.C. 20008

22nd June, 1988

Hon. James H. Scheuer,

Chairman,

Sub-Committee on Natural Resources,
Agriculture, Research and Environment,
Committee on Science, Space and Technology,
2466 Rayburn House Office Building,
U.S. House of Representatives,
WASHINGTON D.C.

Dear Hon. Scheuer,

I have the honour to forward herewith a text of a message I received to-day 22nd June, 1988 from my Ministry of Foreign Affairs and International Co-operation regarding the invitation addressed to Dr. Perez Olindo, Director, Department of Wildlief Conservation and Management to participate in the current hearing on the conservation of the endangered rhinoceros.

Please accept the assurances of my highest consideration.

Yours sincerely,

(DENIS D. AFANDE)
AMBASSADOR.

ENCL.

EMBASSY OF THE
REPUBLIC OF KENYA
WASHINGTON, D.C.

The Ministry of Foreign Affairs & International Co-operation of the Republic of Kenya presents its compliments to the United States House Representative Committee on Science, Space and Technology for the attention of Hon. James H. Scheuer, Chairman, Sub-Committee on Natural Resources, Agricultural Research and Environment and has the pleasure to acknowledge the invitation transmitted to Dr. Perez Olindo, Director, Department of World Life Conservation and Management to participate in the hearing on the conservation of the endangered rhinoceros on 22nd June, 1988 and regret the inability of Dr. Olindo to participate in the current hearing due to other duties directly connected with the protection of the rhinoceros, and the elephant.

However, the Ministry of Foreign Affairs & International Co-operation of the Republic of Kenya wishes to recognize the significant positive impact of the 1986 hearing of the Committee on the same subject and the subsequent American support of the conservation of this species by the USAID through WWF. Hence the support from the U.S. based non-governmental organizations and private American citizens, not only for the conservation of the endangered rhinoceros but for the conservation of biological diversity as well. The Ministry

EMBASSY OF THE
REPUBLIC OF KENYA
WASHINGTON, D.C.

of Foreign Affairs & International Co-operation, wishes to state, therefore, that as a result of Kenya's concerted efforts, the decline of the rhinoceros in Kenya has been halted and there are clear indications of the commencement of a population increase. Over the past 15 months, 5 rhinoceros have been certified dead country-wide of which two are believed to have been poached, two killed for lingering cultural reasons and one by accident, while 23 rhinoceros calves have been born country wide over the same period.

The Government of the Republic of Kenya realizes that the challenge to sustain the indicated rhinoceros population increase will demand over the coming months and years greater national co-operation as well as moral, material, technological and financial support. The Government of the Republic of Kenya believes that intensfied research into all the aspects of rhinoceros survival will cement all the chances of our continued success in the conservation of this species.

In this regard, the Ministry of Foreign Affairs & International Co-operation of the Republic of Kenya avails itself of this opportunity to extend an open and standing invitation to the Chairman of the Sub-committee on Natural Resources, Agricultral Research and Environment as well as to the members of the Sub-committee to honour Kenya by accepting an invitation

EMBASSY OF THE
REPUBLIC OF KENYA
WASHINGTON, D.C.

of the Government of the Republic of Kenya to visit Kenya and therefore see for themselves what is being done to ensure unimpeded conservation of the rhinoceros, the elephant as well as the other species of the wildlife.

The Ministry of Foreign Affairs & International Co-operation of the Republic of Kenya avails itself of this opportunity to assure the United States House Representative Committee on Science, Space and Technology of the United States the assurances of its highest consideration.

WASHINGTON D.C.
22ND JUNE, 1988

Committee on Science, Space and Technology,
2466 Rayburn House Office Building,
U.S. House of Representatives,
WASHINGTON D.C.
U.S.A.

STATEMENT FOR THE RECORD BY

WILLIAM A. NITZE
DEPUTY ASSISTANT SECRETARY
ENVIRONMENT, HEALTH AND NATURAL RESOURCES
U.S. DEPARTMENT OF STATE

FOR

THE HEARINGS ON
CONSERVATION STRATEGIES/SAVING THE ENDANGERED RHINOCEROS

BY

THE SUBCOMMITTEE ON NATURAL RESOURCES,
AGRICULTURAL RESEARCH AND ENVIRONMENT
OF
THE HOUSE COMMITTEE ON SCIENCE AND TECHNOLOGY

JUNE 22, 1988

Mr. Chairman,

At the Subcommittee's hearing in September 1986, the threat of extinction of the rhinoceros was emphasized and the need to re-double our efforts to save these animals was stressed. The State Department welcomes this opportunity to brief the Subcommittee on efforts taken since that time to strengthen international conservation efforts for this species.

Throughout the last two years, State has promoted and supported further U.S. and international efforts to stabilize and preserve the remaining rhinoceros populations. We believe our initiatives, coupled with those of other organizations, have resulted in increased public recognition of this problem, and have produced concrete achievements which will help ensure the survival of the rhinoceros in the wild.

At the time of the 1986 hearings, the Department of Interior's U.S. Fish and Wildlife Service (FWS) published in the Federal Register its refusal to inspect incoming wildlife shipments from Singapore resulting in a de facto ban. Consequently this action, coupled with Congressional interest in the illegal trade of rhinoceros products through Singapore, captured the Government of Singapore's (GOS) attention and

convinced them of the advantages of acceding to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). In addition, the GOS implemented legislation prohibiting trade in rhino products and brought into compliance, with CITES and U.S. regulations, its wildlife permitting procedures.

A joint demarche by the British and American Ambassadors in Sanaa was made on government officials of the Yemen Arab Republic (YAR), to call to their attention the growing international concern and attendant negative publicity directed at the YAR as a result of its continuing illegal imports of rhino horns. The Ambassadors, accompanied by Dr. Esmond Bradley Martin, called on the Deputy Prime Minister, the Foreign Minister and the Minister of Economy, Supply and Trade. The YAR Government immediately proposed a program designed to close down the rhino horn trade within their marketplace. Several of the suggested measures have been implemented. The Yemen Arab Republic is to be commended for their willingness to cooperate in these preservation efforts.

The U.S. Ambassador to the United Arab Emirates (UAE) called on government officials in Abu Dhabi along with Dr. Martin to discuss the UAE's withdrawal from CITES and the illegal trafficking of rhino horn and ivory within that country. Dr. Martin also met with officials of the British Embassy Branch Office and the American Consulate General in Dubai. The UAE apparently withdrew from CITES due to communications failures between the CITES Secretariat and the UAE Government and due to a lack of information on the importance of this Convention. Dr. Martin was advised by UAE officials and the U.S. Embassy on future steps which may prove successful with the sheikhs.

Additionally, the U.S. Embassy in Beijing helped facilitiate Dr. Martin's trip to the Peoples Republic of China to meet with drug companies and government officials to persuade them to use substitutes in their medicinals. We understand that more work remains to be done in this area.

On the occasion of a visit to Burundi last summer by Nancy Reynolds, President of Rhino Rescue, USA, our Ambassador in Bujumbura arranged two very productive and promising meetings

with prominent government officials. Following a coup several months later, the new government decided on November 5, 1987 to sign CITES and adopt legislation banning trade in illegal wildlife products in Burundi. The Department regards these as very positive and highly encouraging steps.

A cable sent in late 1986 to all U.S. Embassies, in countries with rhinoceros populations and countries which allegedly utilize or transship rhinoceros by-products, alerting them to the rapid worldwide extinction of the rhinos and asking them to report on host government efforts to preserve this species. The Department requested an estimate of the rhinoceros populations, information on host country legislation to protect the rhino, and additional assistance necessary to protect more effectively this endangered species. A summary of the reponses on the worldwide status of rhinos was completed last summer. The report was given widespread distribution and copies wer provided for the Subcommittee.

The responses received were not only thoughtful and informative but portrayed those government's concerns over the continuing diminishment of this species. Frustrations about

poaching, lack of resources and budgetary pressures were consistently expressed. The magnitude of the task confronting everyone is freely acknowledged and clearly sobering. These animals are not only a source of national pride but also are an economic asset for the developing countries in which they reside. Poaching denies these governments an opportunity to capitalize (through tourism) on their investments of limited resources expended to protect the rhinos. Equally important, protection often comes at the expense of other pressing priorities. Consequently, the Department is examining with the Department of Defense and the General Services Administration possible mechanisms and legislative options for assisting with the provision of excess property which could be used by wildlife departments and park rangers. Another example of this effort is the Department's cooperative project with FWS Law Enforcement Division (FWS/LE). The Division has seized several aircraft which were used illegally in the commission of wildlife crimes. Following forfeiture, FWS/LE hopes to make one aircraft available for transfer to State for gift or loan to an African country for use in protection of rhinos.

The Department has also pursued opportunities for protecting rhinoceros populations under CITES and the World Heritage Convention. At last year's CITES Conference of the Parties a resolution was passed, based on discussions among the African and Asian range states, interested conservation groups and the United States, calling upon the parties to take further, more stringent, measures to eliminate trade in rhino horn and other by-products. The resolution calls upon the Parties to completely ban the sale or trade of rhino parts and derivatives, to increase penalities for violators, and to encourage the use of substitute products instead of rhino products. In addition, the Parties agreed to take measures to destroy governmental and parastatal stocks, seeking funds from external sources to assist in this effort and to support rhino conservation efforts. The Conference also requested the Parties to use all appropriate means to exert pressures on countries to take the necessary actions to prohibit this trade. Finally, the Parties were called upon to develop national and continental rhino conservation strategies. The Department is hopeful this resolution will provide CITES members with the authority and mandate to press for more effective domestic controls and to work bilaterally to carry out this resolution.

The World Heritage Convention identifies and recognizes the world's irreplaceable natural and cultural properties of outstanding international significance. Through its World Heritage Fund, the Convention provides assistance to nations to protect these universally acclaimed sites from deterioration and destruction. The Convention and its Fund have enabled many countries to preserve their unique cultural and natural legacies for future generations. Two such sites, acknowledged because they contain the most important and signficant natural habitats where threatened species of animals or plants of outstanding universal value still survive, have received emergency and technical assistance grants from the Fund: Garamba National Park in Zaire and the Selous Game Reserve in Tanzania. In 1986 the Fund provided a total of $60,000 to Garamba National Park to improve its park management operations. These grants were utilized for, inter alia, securing the park boundaries and resulted in a significant increase in the population of the northern white rhino (from 13 to 17), the world's most endangered subspecies of rhinos. Emergency funds amounting to $50,000 was provided in 1987 to the Selous Game Reserve for assistance in protecting the elephant and rhino herds from poachers.

Last summer the Department encouraged joint cooperative efforts between the Agency for International Development (AID) and World Wildlife Fund-U.S. (WWF). $100,000 of AID's FY 1987 biological diversity earmark was obligated to support critical work in the conservation of rhinos in Asia and Africa. A rhino management project at Bardia and Royal Chitwan National Park in Nepal, a cultural anthropological study of the rhino horn trade in North Yemen, and a project for the provision of equipment to Kenya's rhino reserves were conceived and implemented under a cooperative AID-WWF agreement. In FY 1988 the AID Mission in Kenya agreed to fund a $40,000 proposal to locate and census Kenya's black rhino populations and to assess the conservation status of their habitats, the security of each population, the degree of breeding isolation and the feasibility of translocation. AID's Asisa/Near East Bureau will support two projects under their FY 1988 cooperative agreement with WWF which will contribute to conservation of Asian rhinos; support for an Asian large mammal project and support for training in Nepal's Royal Chitwan National Park.

The Department has established and maintains close working contact with the American Association of Zoological Parks and

Aquariums (AAZPA). This relationship has fostered and promoted both AAZPA's and State's rhino conservation efforts. In May of 1987, on the 40th anniversary of the establishment of diplomatic relations between the United States and Nepal, King Birendra gave to the people of the United States two pairs of Nepalese greater one-horned rhinoceros as a symbol of friendship. Those animals currently reside at the National Zoo and the San Francisco Zoo and are to be utilized within AAZPA's species survival program for Indian rhinoceros. The King Mahendra Trust for Nature Conservation, the San Francisco and the National Zoos, State and our embassy in Kathmandu played critical roles in seeing this gift through.

The U.S. Ambassador in Jakarta participated in a signing ceremony for an Agreement for the Conservation of the Sumatran Rhinos between the Indonesian Government and the AAZPA Sumatran Rhino Trust on June 16 of 1987. Under this cooperative project up to 7 pairs of Sumatran rhinos will be captured and moved from their natural habitat (which is being destroyed by agricultural development) to breeding facilities and zoos in Indonesia and the U.S. These animals will be utilized in the international breeding pool for Sumatran rhinos.

Also last September, our International Wildlife Officer delivered an address to the Species Survival Program, during AAZPA's Annual Conference, on the Department's efforts to conserve the rhinoceros. Finally, on December 15, after extensive interagency deliberations on AAZPA's behalf by the Department, an orphaned baby black rhino from South Africa arrived at its new residence in the San Diego Zoo. The Department views its cooperation with AAZPA to be positive, successful and mutually rewarding in the field of rhino conservation.

In conclusion, the Department recognizes that while international efforts to protect and conserve this species are increasing, we have a long way to go. We pledge to continue our efforts and will encourage and work with our colleagues to attain this important international goal.

SAVE

FOR EMMEDIATE RELEASE

JUNE 22, 1988

CONTACT: INGRID SCHROEDER

212-949-0606

NEW YORK CITY - - Since 1980 Save African Endangered Wildlife Foundation (SAVE) has worked to strengthen the anti-poaching efforts of the Department of National Parks and Wildlife Management Zimbabwe. From the beginning SAVE has focused attention on Zimbabwe and th country now holds the last viable population of black rhino occurring in the wild, approximately 750. Up until recent years SAVE had been the sole non-governmental supporter of black rhino conservation in the country. Zimbabwe's Zambezie Valley has recently been declared a top-priority by the African Elephant Rhino Specialist Group of the IUCN.

For 8 years SAVE has played a key role in the survival of Africa's magnificent wildlife in particular the endangered black rhino. SAVE always works from a list of priorities given to them by the Department of National Parks and Wildlife Management and are in daily communication with wildlife officials from Zimbabwe. To date SAVE has donated over half a million dollars worth of anti-poaching equipment. SAVE was responsible for providing the communication's network throughout the entire parks area where black rhino occur by donating one of the most sophisticated radio systems available. Over the years SAVE has also donated items such as jeeps, single engine airplanes, boat motors, anti-poaching field equipment and a 20 ton translocation truck used to relocate rhino out of heavily poached areas to safer grounds.

Sep. 24 '87 17:01 0000 AMER. INTL. ORE 599-0159

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Telephone 707624
Telegrams: "PARKLIFE HARARE"

Ref. D/547/20

DEPARTMENT OF NATIONAL PARKS
AND WILD LIFE MANAGEMENT
P.O. BOX 8365, Causeway
Zimbabwe

2nd September, 19 87

Ms Ingrid Schroeder
SAVE
230 Park Avenue
Suite 2711
New York
NY 10017
United States of America

Dear Ms Schroeder,

re: SAVE DONATION OF EQUIPMENT TO OPERATION STRONGHOLD: MAY 1987

On behalf of the Department of National Parks and Wild Life Management I would like to take this opportunity to thank you for your substantial support. The 15 radios, 60 tents, flashlights, vital spares for aircraft and boat engines have already proved to be invaluable in maintaining our ability to function.

Save's generous donations are a fine example of commitment and dedication. It is the only Organisation that supports our anti-poaching efforts in this particular way and indeed plays a unique and vital role.

Our very sincere thanks to you personally and to SAVE, without whose contribution Operation Stronghold may very well have failed.

Yours sincerely,

Dr W K Nduku
DIRECTOR,
NATIONAL PARKS AND WILD LIFE MANAGEMENT.

WKN/MB

The New York Times

NEW YORK, TUESDAY, MAY 6, 1986

Poachers and Protectors Wage War Over Rhinos

By ERIK ECKHOLM

THE black rhinoceros, already an endangered species, is under attack by heavily armed poachers in one of its last sanctuaries. Officials in Zimbabwe say they have shot and killed nine illegal hunters there since June.

The area, in the Zambezi valley in northern Zimbabwe, had until last year escaped the severe poaching that has reduced the world's black rhinoceros population by more than 90 percent in just 15 years.

"It's a bush war," said Glen Tatham, a Zimbabwe park warden, in an interview. He is in New York to raise funds for field radios, motorboats, backpacks and other antipoaching equipment.

"For the rhinos, the situation is desperate," Mr. Tatham said.

About 750 black rhinoceroses, the largest intact group left in Africa, roam the Chewore region of the Zambezi valley, an uninhabited area of 4,000 square miles.

"This population is of very great importance for the species," said Jaques Berney of the Convention on International Trade in Endangered Species in Lausanne, Switzerland.

On a morning early in 1985, six of the animals were killed in five hours. By the end of the year officials had discovered 73 hornless carcasses and estimated that perhaps another 15 lay undiscovered.

"We never dreamed the threat would reach those proportions," Mr. Tatham said. "Overnight it became a crisis, and since then it's been a real battle."

Armed patrols have been increased, some including former guerillas from Zimbabwe's war of liberation from white rule. Prison terms for captured poachers were lengthened to 11 years. But despite the new measures, so far in 1986 another 15 mutilated rhinoceros carcasses have been found.

Horns Are Sought

The hunters kill the animals for their horns, which sell for thousands of dollars each in North Yemen for use in dagger handles. Ground-up horns command hundreds of dollars a pound as Asian traditional medicines.

Despite an international ban on the horn trade, rhinoceroses have declined rapidly throughout Africa at the hands of organized gangs, according to international experts.

In 1970, an estimated 65,000 lived in Africa. Conservationists focused their concern on the southern white rhinoceros, a different species that had nearly disappeared but has since been restored to a few thousand through intensive efforts in several countries.

The alarm about black rhinoceroses was raised in earnest in 1980, when experts discovered that the total had fallen to about 15,000. But the slaughter has continued. Today only about 4,500 remain, according to specialists with the International Union for the Conservation of Nature, based in Gland, Switzerland.

Many of Africa's remaining rhinoceroses are in scattered groups not considered viable by biologists. Solitary creatures, rhinoceroses may fail to locate mates when their populations become too sparse.

Zimbabwe's Example

Zimbabwe stands out among African countries for its successful wildlife protection, according to Ingrid Schroeder, president of the Foundation to Save African Endangered Wildlife in New York, which has supplied antipoaching equipment to the country. But the new onslaught is severely taxing its protection forces, she said.

"We knew the pressure would come to us," Mr. Tatham said. In recent years, rhinoceros populations were destroyed in the nearby countries of Tanzania, Central African Republic and Zambia. "It was easy for the poachers to switch to the Zambezi valley. All they had to do was cross the river," he said. A 150-mile stretch of the Zambezi River divides the threatened area from Zambia.

"It's almost impossible to patrol the entire river border," Mr. Tatham said. "It would take a division of men."

The rhinoceroses of the Zambezi valley had not been hunted for decades and, in some areas frequented by tourists, the animals had lost their shyness, making them easy prey.

Since the beginning of 1986, Zimbabwean guards reported having shot and killed nine poachers who were armed with high-caliber hunting rifles. Cartridge magazines from AK-47 automatic weapons have also been found. Another eight poachers have been captured and sent to prison.

All those killed or captured have been identified as Zambian citizens, according to Zimbabwe officials, and the war over wildlife has become an issue between the two governments. Officials from Zimbabwe complain

A black rhinoceros

that Zambia has made inadequate efforts to capture poachers chased back across the river or to trace the origins of captured guns.

Some Zambian legislators have expressed outrage over the shooting of their countrymen.

"To kill a man for shooting an animal is a very delicate matter in Africa," Mr. Tatham, the Zimbabwe warden, acknowledged. But he added that the leaders of both Zimbabwe and Zambia have publicly supported the policy of shooting armed poachers.

Last year Kenya adopted drastic measures to save the remnants of its rhinoceros population. Several hundred are being rounded up and kept in fenced, guarded sanctuaries.

"We don't want to let things get to that point in Zimbabwe," Mr. Tatham said.

TIME RUNNING OUT FOR BLACK RHINO—US ENVOY

By Our Special Correspondent

THE United States is looking at additional ways to assist Zimbabwe in its efforts to preserve the black rhinoceros, the US Ambassador, Mr James W. Rawlings, said in an interview in Harare on Wednesday.

The ambassador had just returned from the Zambezi Valley, where for four days he viewed extensive anti-poaching operations being conducted by the Department of National Parks and Wild Life Management.

Noting that time is running out on the effort to save this endangered species, Mr Rawlings praised the Government for its strong commitment, including the allocation of substantial financial resources, to the anti-poaching campaign.

However he said the urgency and extent of the problem also demanded major help from outside.

He said he and his government were looking at new possibilities to support Zimbabwe's Operation Stronghold, and that the US government was fully behind private American efforts to raise funds for the rhino's protection.

"Rhino once ranged throughout this continent," Mr Rawlings said, "but the only country that still has a truly viable black rhino population is Zimbabwe."

Poachers from Zambia were now seriously threatening this species, he said. National Parks officials reported that their forces in the Zambezi Valley had found poached carcasses of 308 black rhinos since Zimbabwe was first invaded by poachers in late 1984, and the actual number of rhinos poached was thought to be higher.

The poachers are heavily armed with automatic weapons and are known to be some of the same groups that virtually eradicated the black rhinoceros from Zambia's Luangwa National Park by killing some 3 000 rhino.

With few rhino left in Zambia, parks officials say the poachers turned south to Zimbabwe in late 1984, striking first at safari areas near Lake Kariba.

As they depleted the black rhino population in the western areas, they began moving further east. The main poaching pressure now, according to parks officials, is in the Sapi and Chewore safari areas.

Poachers cross the Zambezi in canoes and crude boats and often walk long distances at a fast pace into Zimbabwe to shoot their prey.

Mr Rawlings said he observed the high degree of vigilance that Zimbabwe's National Parks personnel maintained to identify evidence of poachers.

"I was very impressed with the strong spirit and extreme dedication of all the parks personnel I met — even in the midst of long patrols," he said.

Experience shows that the poachers are prepared to shoot rather than be captured. According to National Parks statistics, 29 poachers have been killed and 22 captured in vicious firefights since the rhino war began three years ago.

So far this year, 30 poacher incursions into Zimbabwean territory have been recorded. At least 52 rhino have been killed, and National Parks forces have killed 10 poachers and captured three.

The parks personnel had a major need for more manpower and more logistical support if they were to stop the poachers and preserve the species, Mr Rawlings said.

They were at present covering 250 km of river front and 12 000 square km of bush. "They need all the help they can get," the US ambassador said.

To this end, the United States recently gave $677 000 to National Parks for staff housing and equipment. Previously, parks personnel stayed in the Zambezi Valley only during the dry season and could get along in makeshift quarters.

Now, with the poachers operating year - round, they must stay in the valley throughout the rainy season and need substantial housing. The US assistance, drawn from local currency generated by the Commodity Import Programme, also included four Land Rovers and boat motors.

In an earlier grant, the US government provided National Parks with US $186 000 for two-way radios.

The American private organisation SAVE has contributed more than US $350 000 in aircraft and equipment, the Frankfurt Zoological Society gave and is maintaining an aircraft, the W. [illegible] Fund is paying for a leased helicopter, and the Swiss and Australian governments have provided marine equipment for use on the Zambezi River.

During the tour of the region, Mr Rawlings also visited the National Parks rhino capture operation. So far this year, parks personnel have captured 101 black rhinos in the Zambezi Valley, bringing the total to just over 200 that are being moved to safe areas.

The object of this operation, parks officials said, was to ensure that viable breeding herds continued to exist, even if the poachers could not be fully stopped.

THE United States Ambassador, Mr James Rawlings (with cap), and Warden Clem Coetsee with a drugged rhino.

US considering more help for rhino campaign

CHIEF warden Glen Tatham with a captured young rhino at Nyakasikana camp. The rhino is to be moved to a safer area.

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President

COMPREHENSIVE SHOPPING LIST OF EQUIPMENT, IN PRIORITY ORDER, NEEDED FOR THE RHINO ANTI-POACHING OPERATIONAL AREAS IN ZIMBABWE

1. Operation Stronghold - Zambezi Valley

No. requ.	Item	Description
10	Vehicles	4 x 4 diesel pick-up, Landrover, Toyota.
20	Radios	HT 90, handheld (Motorola)
100	Batteries	HT 90 nicad.
1	Solar panel	Charging above batteries
500	Batteries	Torch, duracell
	Night-optics	See attached details
5	Boat engines	Evinrude/Johnson/Yamaha 25hp
3		Evinrude/Johnson/Yamaha 70hp
2		Evindrude/Jonshon/Yamaha 90hp
100	Backpacks	Jungle green/camouflage Bergen/ Campmor/other make with internal frame perferably or H-frame
50	Gas cookers	Campergaz cookers with refil cylinders
5	Spotlight Halogen	Battery-operated, with long lead
30	Pencil Flare	Applicator
500	Pencil Flare	Cartridges, mini red/green/white signal.
10	Tools	Complete set: Metric & Imperial Socket spanners Open-ended/ring combination spanners Screwdrivers assorted Adjusting spanners assorted Allen keys Pliers, assorted
16	Tyre Pumps	Foot, double-action (manual)
10	Tyre Pumps	Mini/mobile (electrical)

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10	Lighting plant	Diesel, portable
2	Headphones	Aircraft, Dave Clark, adaptable to HT 90 radios.
30	Gas lights	Campergaz light

Recreational equipment for staff in camp

10	Radios	Civilian band FM/AM

In addition to the above list, funds are needed for the local purchase of the following:

2	Boats	Sportster, glass fibre hull

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2. **Operation Sebungwe - south of Lake Kariba.**

10	Vehicles	4 x 4 diesel pick-up, Landrover Toyota.
7	Motorbikes	175 Yamaha trail
	Spares	For above, with tyres and tubes
4	Boat engines	Evinrude/Johnson/Yamaha 70hp
12	Radios	HT 90, Motorola
36	Batteries	HT90, nicad
1	Solar panel	for charging nicad batteries
	Night optics	See attached schedule
50	Flashlights rubberized	2-cell
500	Batteries	duracell for torches
5	Spotlight Halogen	Battery-operated with long lead
25	Tents	Dome, two-man, lightweight (High Adventure)
15	Compasses	Swiss-made, as per previous purchase
15	Pencil Flare	Applicator
500	Pencil Flare	Cartridges, mini red/green/white signals

Ingrid Schroeder
President

35	Gas cookers	Campergaz cookers with cylinders
30	Gas light	Campergaz light
7	Tools	Complete set. Metric & Imperial Socket spanners Open-ended/ring combination spanners Screwdrivers assorted Adjusting spanners assorted Allen keys Pliers, assorted
14	Tyre Pumps	Foot, double-action (manual)
7	Tyre Pumps	Mini/mobile (electrical)
6	Lighting plant	Diesel, portable
2	Headphones	Dave Clark, adaptable to HT90

In addition to the above list, funds are needed for the local purchase of the following:

2	Boats	Sportster, glass-fibre hull

Aircraft spares urgently needed:

Supercub Z-WMP	Exhaust Gas Temperature Gauge R35 battery Replacement/exchange Lycoming 160hp Main tyres and tubes Tailwheel tyres Airfilter cone
Maule N346X	Replacement engine

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3. Operation Hwange - North-western and western border areas

12	Vehicles	4 x 4 diesel pick-up, Landrover Toyota.
8	Motorbikes	175 Yamaha trail
	Spares	For above, with tyres and tubes
2	Boat engines	Evinrude/Johnson/Yamaha 70hp
14	Radios	HT 90, handheld (Motorola)
50	Batteries	HT 90 nicad

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	Night optics	See attached schedule
35	Flashlight rubberised	2-cell
500	Batteries	Duracell for torches
2	Spotlight Halogen	Battery-operated with long lead
60	Tents	Dome, two-man, lightweight (High Adventure)
25	Compasses	Swiss-made, as per previous purchase
16	Pencil Flare	Applicator
500	Pencil Flare	Cartridges, mini red/green/white signals
50	Gas cookers	Campergaz cookers with cylinders
20	Gas light	Campergaz light
7	Tools	Complete set: Metric & Imperial Socket spanners Open-ended/ring combination spanners Screwdrivers assorted Adjusting spanners assorted Allen keys Pliers, assorted
14	Tyre Pumps	Foot, double-action (manual)
7	Tyre Pumps	Mini/mobile (electrical)
6	Lighting Plant	Diesel, portable
1	Headphones	Dave Clark, adaptable to HT90

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4. Operation Gonarezhou - southeast lowveld

6	Vehicles	4 x 4 diesel pick-up, Landrover, Toyota.
2	Motorbikes	175 Yamaha trail
	Spares	As for above and tyres & tubes
10	Radios	HT 3C, handheld (motorola)
30	Batteries	HT 90 nicad

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10 300	Flashlight Batteries	2-cell Torch, duracell
	Night-optics	See attached details
25	Gas cookers	Campergaz cookers with refil cylinders
10 200	Pencil Flare Pencil Flare	Applicator Cartridges, mini red/green/white signal
3	Tools	Complete set: Metric & Imperial Socket spanners Open-ended/ring combination spanners Screwdrivers assorted Adjusting spanners assorted Allen keys Pliers, assorted
6	Tyre pumps	Foot, double-action (manual)
2	Tyre pumps	mini/mobile (electrical)
2	Lighting plant	Diesel, portable
1	Headphones	Dave Clark, adaptable to HT 90
20	Gas lights	Campergaz light

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list currently being updated for additional items which have come up.

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